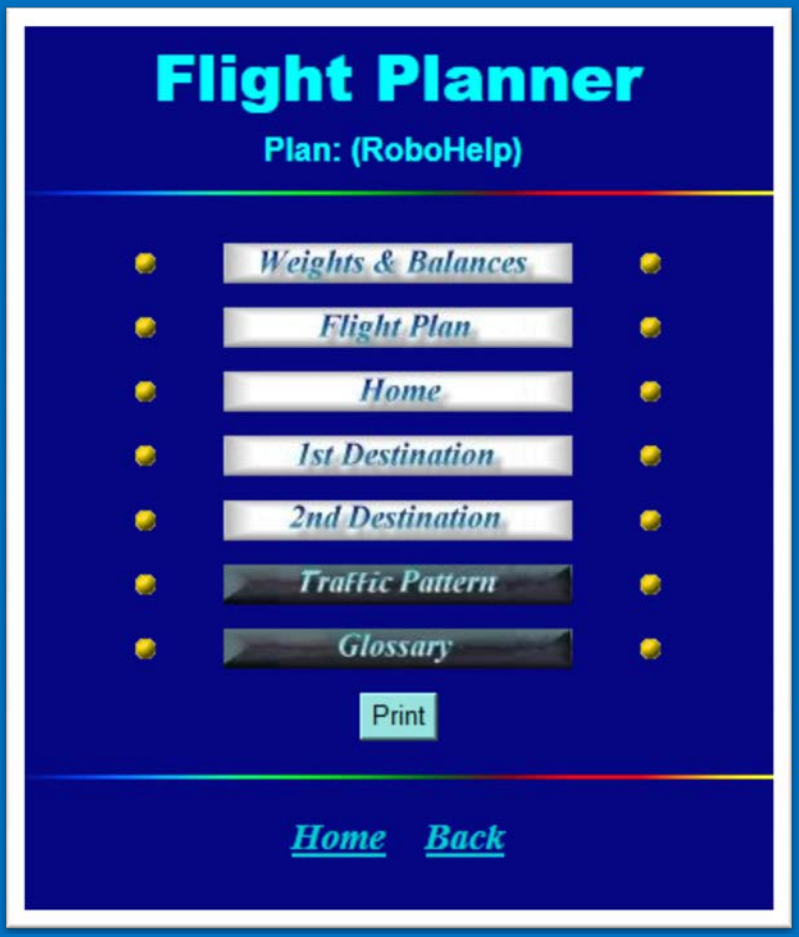

USERS GUIDE: FLIGHT PLANNER: PLAN

(FOR TOWER AIRPORTS OPERATING IN CLASS C AIRSPACE)

BY JACKIE BOLEN


AIRPORT/FACILITY DIRECTORY
SOUTHWEST U.S.
SW

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1 INTRODUCTION

Figure 1-1: "Flight Planner: Plan" Webpage

IMPORTANT! For navigation of "Flight Planner: Plan" website, please use "Flight Planner" and "Back" buttons, at bottom of each page, unless directed to "Click on browser's back arrow."

The Plan provides following set of online forms, for a convenient way to enter, calculate, and organize following required information:

- **Weights & Balances:** For proper Take-Off and operation of Fully-Loaded Aircraft
- **Flight Plan:** Set of forms for generating the Flight Plan, to be filed with the FAA Briefer, at the start of your flight
- **Home:** For departing from the Departure Point
- **1st Destination:** For arriving at the First Destination
- **2nd Destination:** (Optional): For arriving at the Second Destination, if applicable

Along with following functions:

- **Traffic Pattern:** Set of displayed Traffic Patterns for Take-Off/Landing
- **Glossary:** Glossary of terms, also accessible from each form
- **Print:** Set of print-outs which provide flight-critical information

NOTE: For simplicity, 1st Destination is covered, as "Destination": Optional 2nd Destination is not covered.


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2 GETTING STARTED

Figure 2-1: GETTING STARTED

This chapter lists following information and types of items, required for planning your flight:

- *Required Documents*
- *Required Instruments*
- *Required Other*
- *System Requirements*
- *Conventions*
- *Location of Buttons and Navigation Links*
- *Procedure for Getting to "Flight Planner: Plan"*

2.1 REQUIRED DOCUMENTS

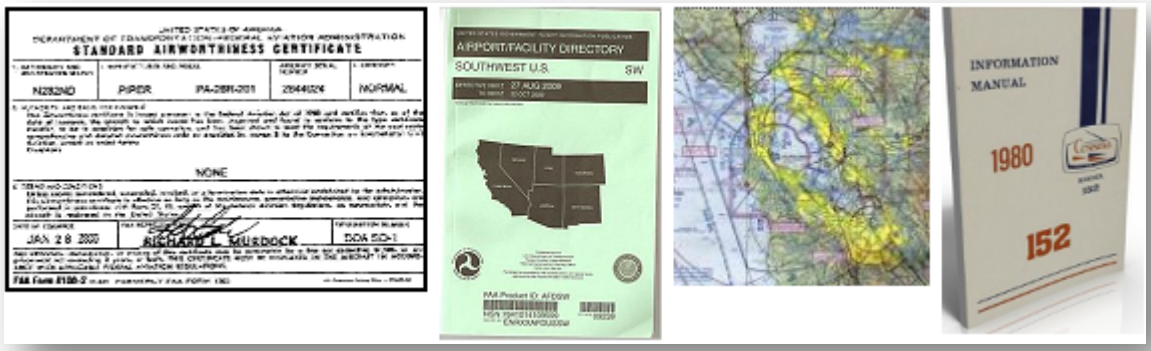


Figure 2-2: Required Documents

You will need the following documents:

- ***Aircraft's Documentation:*** Aircraft registration, maintenance records, and aircraft-specific information, usually found in aircraft's glove compartment
- ***Airport/Facilities Directory*****:** Required directory (green book) used for obtaining airport-related information, purchased at store specializing in flying supplies: Must be current.

  NOTE: The *Pilots Guide to Airports* may be used instead, as a directory, produced by OPTIMA, for obtaining airport-related information, usually purchased at a store specializing in flying supplies: Includes periodic updates, which keep it current.

- ***Chart:*** Required aeronautical chart used for plotting Route of Flight, purchased at store specializing in flying supplies: Must be current.
- ***Pilots Operator Handbook*****:** Operators manual for Aircraft Type, purchased at store specializing in flying supplies

2.2 REQUIRED INSTRUMENTS

Figure 2-3: Required Instruments

You will need the following instruments:

- **Calculator:** Everyday calculator used to calculate Distance, etc. Purchased at store selling Stationary supplies.
- **Phone:** To call WX-BRIEF (800 number)
- **Plotter:** Instrument used for plotting Route of Flight, purchased at store specializing in flying supplies
- **Transponder with Mode C:** Instrument located in aircraft's Instrument Panel that enhances aircraft's identity on Air Traffic Controller's radar screen.

  Mode C provides additional required capabilities for operating in Class C Airspace that enable Air Traffic Controller to keep track of aircraft's identity.

NOTE: "Transponder with Mode C" may also be referred to as "Transponder."

2.3 REQUIRED OTHER

Figure 2-4: Required Other

You will need the following individual and information:

- **Flight Instructor:** Source of information required for your Flight
- **Your Weight:** One of heaviest objects aboard Fully-Loaded Aircraft, and used for Weights & Balances.

2.4 System Requirements

You will need a system with a Web Browser that can run HTML5 code.

2.5 Conventions

- Document titles are listed in Italics.
- In this document, buttons and field names, and webpage titles, are listed in Bold-Face.
- On webpages, buttons are underscored.

2.6 Location of Buttons and Navigation Links

- Buttons are located throughout each webpage, as applicable.
- **Flight Planner** and **Back** navigation links (buttons) are located at bottom of webpages, as applicable.

2.7 Procedure for Getting to "Flight Planner: Plan"

Task:

1. Go to http://www.jbolen.net, to display **Jackie Bolen** homepage.
2. Click on **Flight Planner**, to display **Flight Planner** webpage.
3. Click on **Plan**, to display **Flight Planner: Plan** webpage.

3 "WEIGHTS & BALANCES" FORM

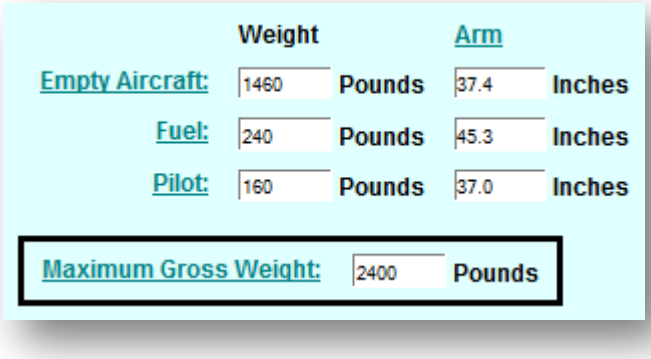


Figure 3-1: "WEIGHTS & BALANCES" Form

NOTE: All examples in this chapter use a Cessna 152 for the aircraft, with only a Pilot aboard, and no luggage.

"Weights & Balances" Form: Provides a convenient way to ensure that Fully-Loaded Aircraft is:

- ***Weights:*** Not overweight
- ***Balances:*** Properly balanced

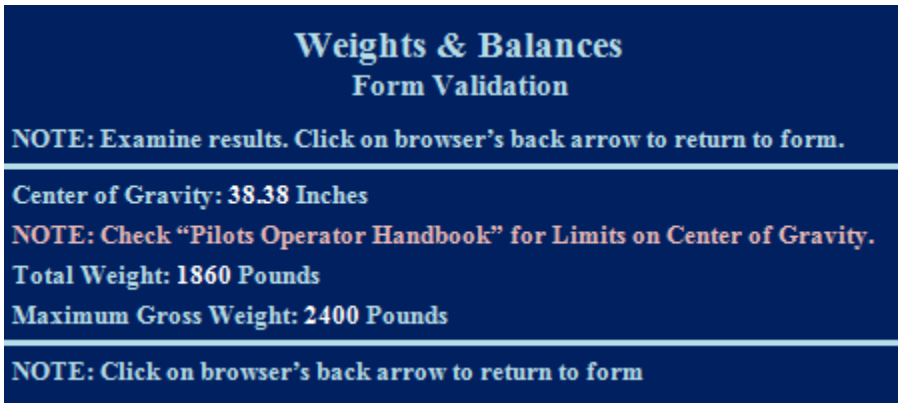
Required for proper Take-Off and operation of aircraft

Prerequisites:

- *Pilots Operator Handbook*
- Your Weight

Task:

1. From **Flight Planner: Plan** webpage, click on **Weights & Balances**, to display **"Weights & Balances"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.



NOTE: Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.

5. Click on **Submit** button (at bottom of form), to submit entered information.

   NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

6. Click on **Back**, to re-display **Flight Planner: Plan** webpage.

Result:

The Fully-Loaded Aircraft's:

- **Total Weight:** Will not exceed its Maximum Gross Weight (allowable) for Take-Off.
- **Center of Gravity:** Will not have shifted from when it was empty.

4 "FLIGHT PLAN" SET OF FORMS

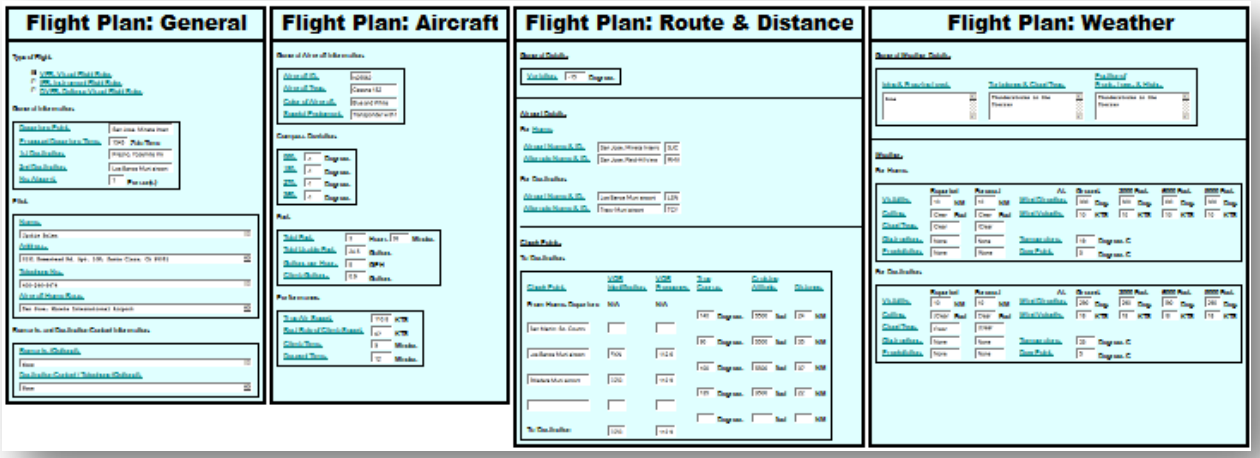


Figure 4-1: "FLIGHT PLAN" Set of Forms

NOTE: All examples in this chapter use a Cessna 152 for aircraft, "San Jose, Mineta International Airport" for Departure Point, and "Fresno, Yosemite International Airport" for Destination, as two Tower Airports operating in Class C Airspace.

"Flight Plan" Set of Forms: Provide a convenient way to organize following information:

- ***"Flight Plan: General":*** General flight-related information, for filing with FAA Briefer at start of Flight
- ***"Flight Plan: Aircraft":*** Aircraft-related information, critical for Aircraft performance
- ***"Flight Plan: Route & Distance":*** Navigation-related information, required for pre-flight planning, and keeping track of progress during Flight
- ***"Flight Plan: Weather":*** Weather-related information, required for pre-flight planning, and avoiding certain hazardous situations during Flight

4.1 "FLIGHT PLAN: GENERAL" FORM

Figure 4-2: "Flight Plan: General" Form

"Flight Plan: General" Form: Provides a convenient way to organize following general flight-related information, for filing with FAA Briefer at start of Flight:

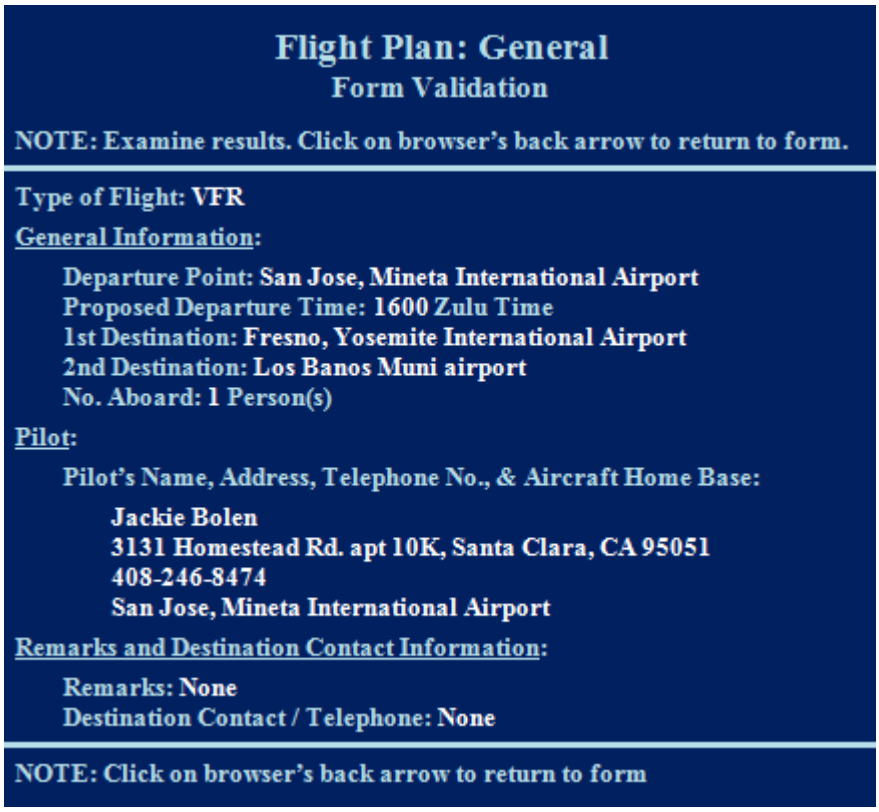
- **Type of Flight:** Visual Flight Rules, Instrument Flight Rules, or Defense Visual Flight Rules
- **Departure Point:** Name of Home city and airport
- **Proposed Departure Time:** Planned Departure Time, listed in Zulu Time
- **Destination:** Name of Destination city and airport
- **No. Aboard:** Number of individuals aboard aircraft, including yourself
- **Name:** Your name, as Pilot
- **Address:** Use your home address
- **Telephone No.:** Use your mobile phone or home telephone number
- **Aircraft Home Base:** Usually same as Departure Point

Prerequisites:

- Your Flight Instructor (for Student Pilot)

Task:

1. From **Flight Planner: Plan** webpage, click on **Flight Plan**, to display **"Flight Plan: General"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.



NOTE: Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

Result:

Information will be used to generate following print-out, per following sub-chapter:

- ***8.1: "Flight Plan Section":*** Provides general flight-related information used for filing with FAA Briefer at start of Flight.

4.2 "FLIGHT PLAN: AIRCRAFT" FORM

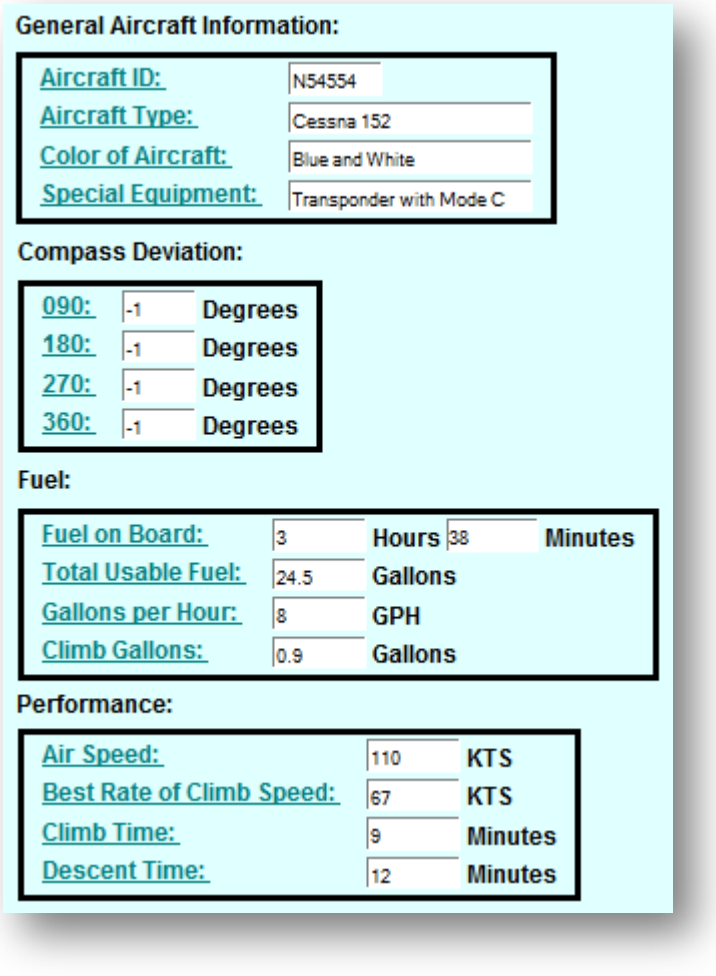


Figure 4-3: "Flight Plan: Aircraft" Form

"Flight Plan: Aircraft" Form: Provides a convenient way to organize following aircraft-related information, critical for aircraft performance:

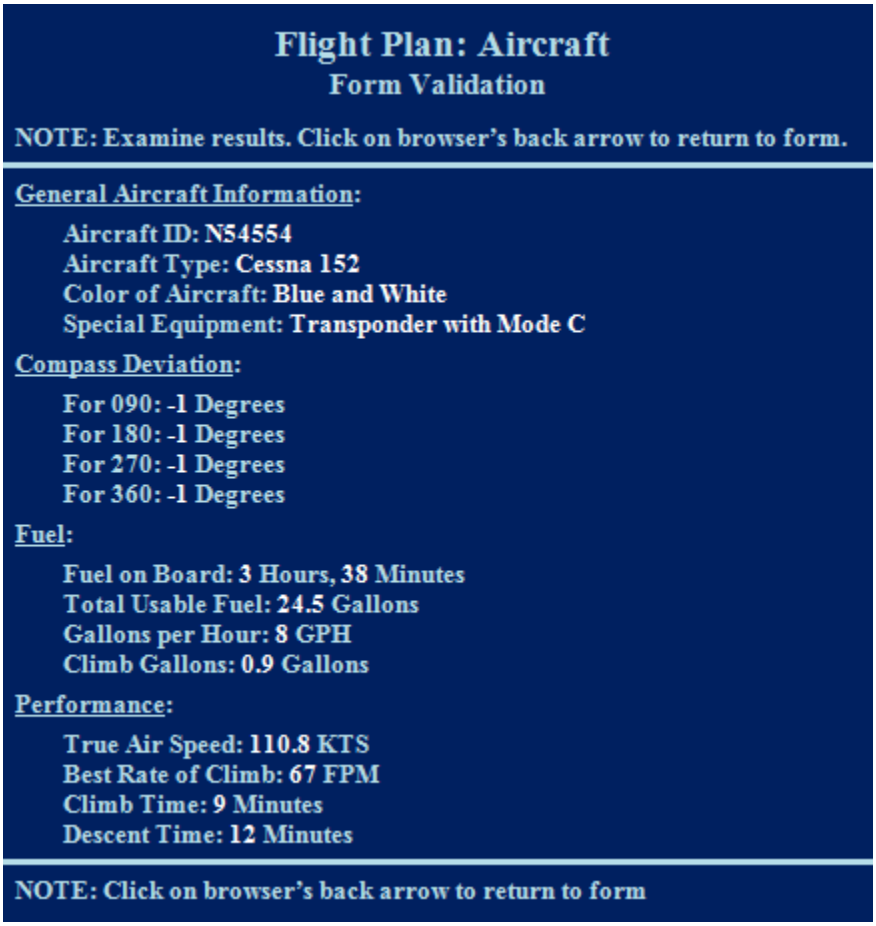
- **Aircraft ID:** Aircraft's license number, usually starting with "N"
- **Aircraft Type:** Aircraft make and model
- **Color of Aircraft:** May be multiple colors.
- **Special Equipment:** Any special equipment aboard aircraft
- **Compass Deviation:** Of aircraft's Compass, caused by electrical and metal components in aircraft
- **Fuel on Board:** Aircraft's total fuel
- **Total Usable Fuel:** Aircraft's total fuel available for flight planning
- **Gallons per Hour (GPH):** Amount of fuel consumed per hour
- **Climb Gallons:** Amount of fuel required for aircraft to climb to Cruising Altitude
- **Air Speed:** Speed displayed by aircraft's Air Speed Indicator, in Nautical Miles
- **Best Rate-of-Climb Speed:** Results in best rate of climb, in Nautical Miles
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude after Take-Off
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude

Prerequisites:

- *Aircraft's Documentation*
- *Pilots Operator Handbook*

Task:

1. From **"Flight Plan: General"** form, click on **Next**, to display **"Flight Plan: Aircraft"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.



NOTE: Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

Result:

Information will be used to generate following print-out, per following sub-chapter:

- ***8.1: "Flight Plan Section":*** Provides general flight-related information used for filing with FAA Briefer at start of Flight.

4.3 "FLIGHT PLAN: ROUTE & DISTANCE" FORM

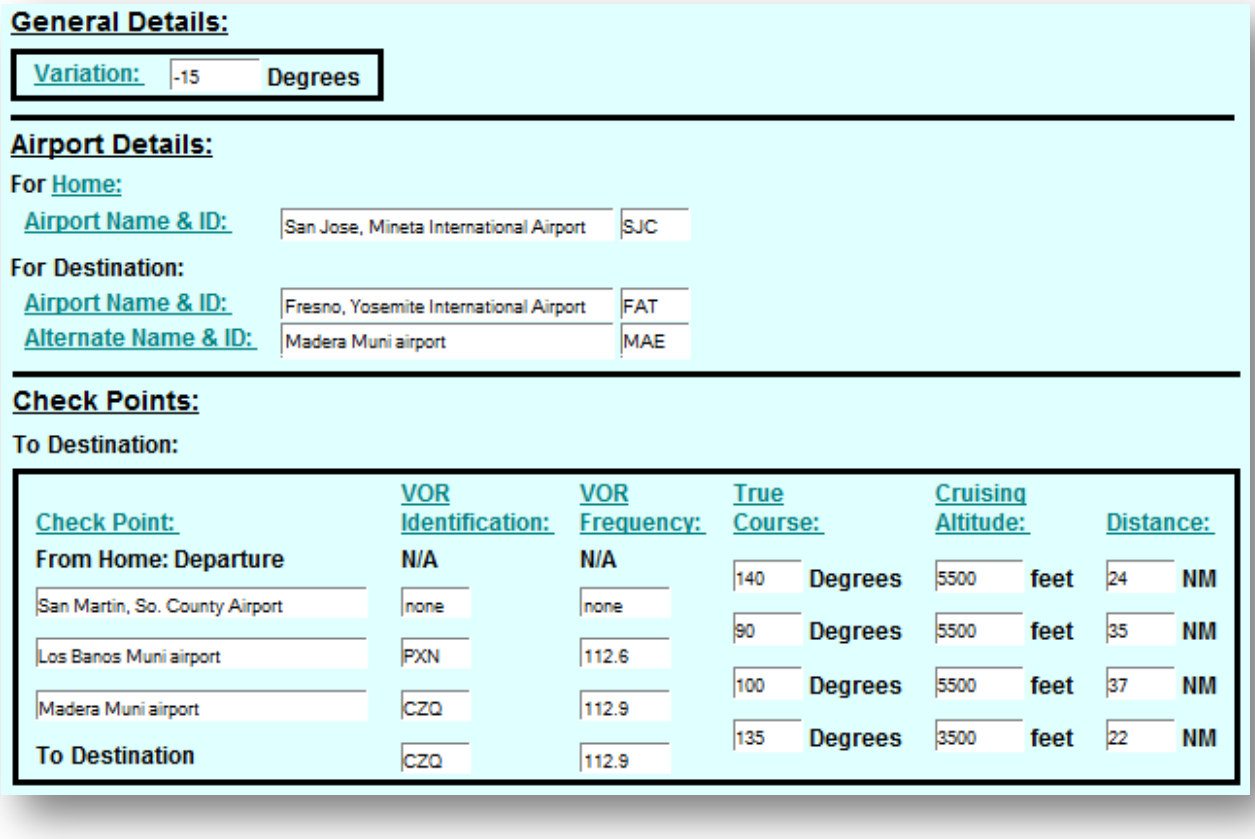


Figure 4-4: "Flight Plan: Route & Distance" Form

"Flight Plan: Route & Distance" Form: Provides a convenient way to organize following navigation-related information, required for pre-flight planning, and keeping track of progress during Flight:

- **Variation:** Difference between actual location of North Pole, and Compass display of 360 Degrees
- **Airport Name & ID:** Name of city and airport, and unique 3-letter alpha-numeric identification
- **Alternate:** Designated airport where aircraft can land if Destination inadvisable
- **Check Points:** Set of recognizable landmarks that can be positively identified from the air
- **VOR Identification & Frequency:** VHF Omni-directional Range: Radio navigational system
- **True Course:** Intended direction of flight, as measured on *Chart*
- **Cruising Altitude:** Level portion of aircraft travel, where flight is most fuel-efficient
- **Distance:** In Nautical Miles

Prerequisites:

- *Airport/Facilities Directory*
- *Chart* and Plotter

Task:

1. From **"Flight Plan: Aircraft"** form, click on **Next**, to display **"Flight Plan: Route & Distance"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.

NOTE: This example shows only a portion of a lengthy display. Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

Result:

Information will be used to generate following print-out, per following sub-chapter:

- ***8.3: "Navigation Log":*** Provides navigation-related information used for pre-flight navigation planning and keeping track of progress during Flight.

4.4 "FLIGHT PLAN: WEATHER" FORM

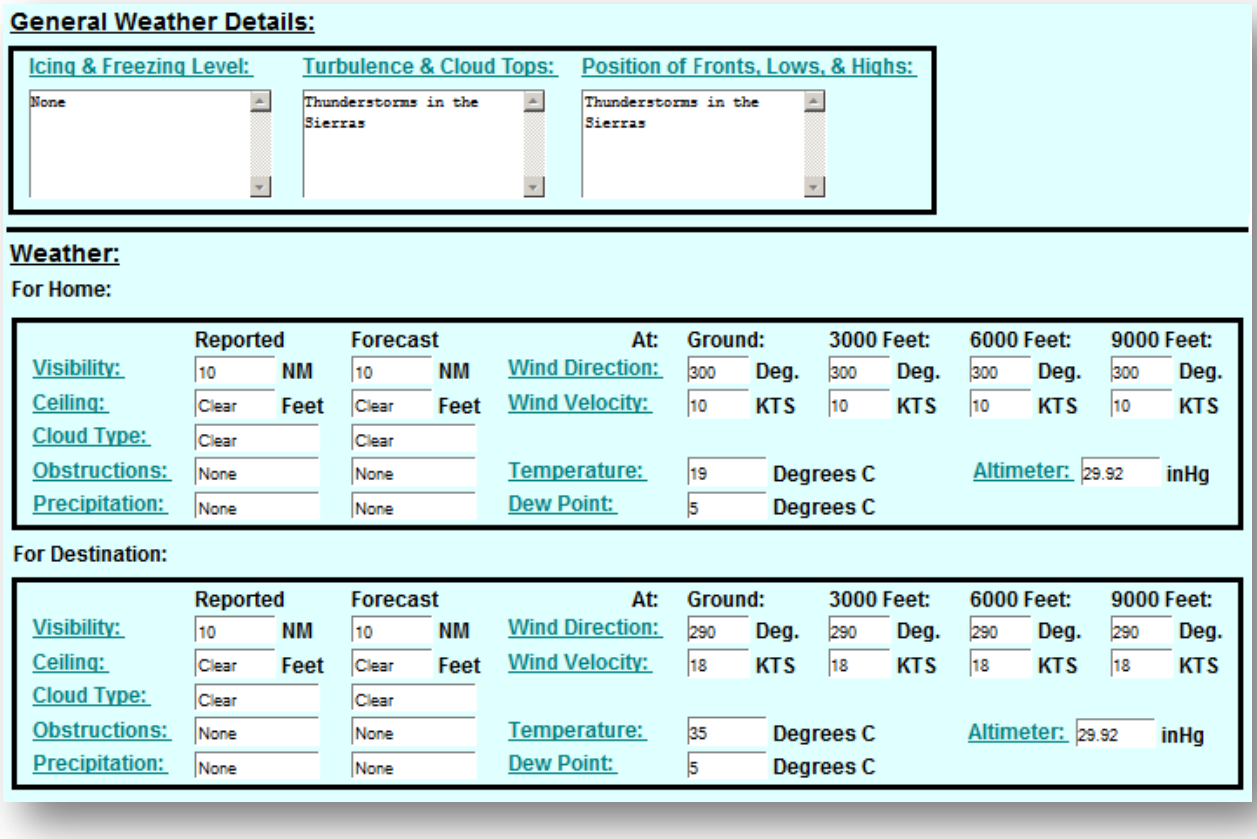


Figure 4-5: "Flight Plan: Weather" Form

"Flight Plan: Weather" Form: Provides a convenient way to organize following weather-related information, required for pre-flight planning, and avoiding certain hazardous situations during Flight:

- **Icing & Freezing Level:** Height above Earth's surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft
- **Turbulence:** Turbulent movement of air masses caused when bodies of air meet
- **Cloud Tops:** Cloud Height usually associated with Turbulence
- **Front:** Leading edge of air masses with different density
- **Low/High Pressure Center:** Region of Earth's atmosphere where air pressure is low/high
- **Visibility:** Greatest distance an observer can see and identify objects, in Nautical Miles
- **Ceiling:** Cloud Layer: Height above Earth's surface of lowest layer of clouds
- **Cloud Type:** Type of Clouds
- **Obstructions:** Particular matter in atmosphere that obstructs/reduces Pilot's visibility
- **Precipitation:** Water particles that fall from the atmosphere and reach the ground
- **Wind Direction**
- **Wind Velocity:** Speed: In Nautical Miles
- **Temperature:** Air Temperature: In Degrees Centigrade
- **Dew Point:** Temperature where water vapor will condense into liquid water, in Degrees Centigrade
- **Altimeter:** Setting used to adjust Altimeter for variations in atmospheric pressure, in inHg.

Prerequisites:

- Phone, to call WX-BRIEF

Task:

1. From **"Flight Plan: Route & Distance"** form, click on **Next**, to display **"Flight Plan: Weather"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.

NOTE: This example shows only a portion of a lengthy display. Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

6. Click on **Flight Planner**, to re-display **Flight Planner: Plan** webpage.

Result:

Information will be used to generate following print-out, per following sub-chapter:

- ***8.2: "Weather Log":*** Provides weather-related information used for pre-flight weather planning and avoiding certain hazardous situations during Flight.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5 "HOME" FORM

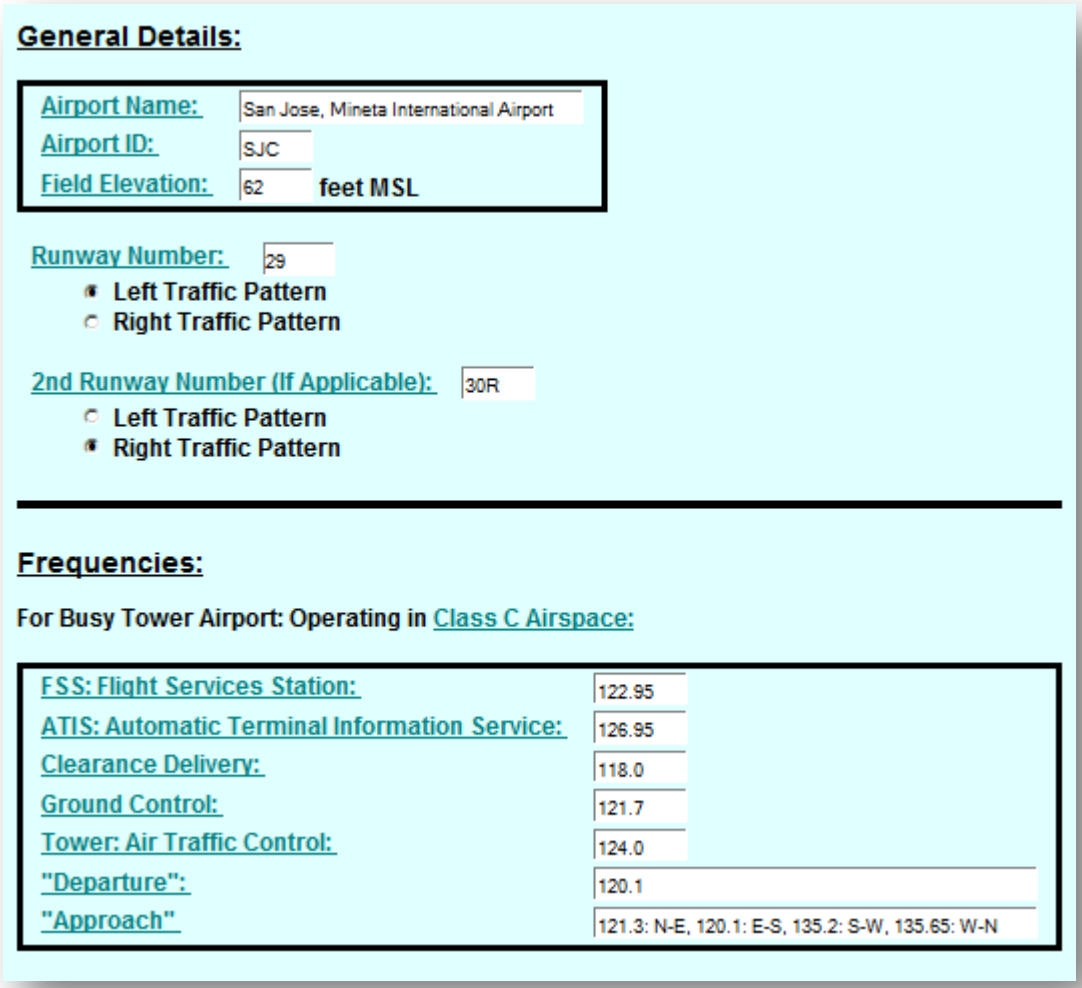

Figure 5-1: "HOME" Form

NOTE: All examples in this chapter use a Cessna 152 for the aircraft, and "San Jose, Mineta International Airport" for Departure Point, as a Tower Airport operating in Class C Airspace.

"Home" Form: Provides a convenient way to organize following required information for Home airport:

- **Airport Name:** Name of city and airport
- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, in Feet MSL
- **Runway Number:** Runway assigned for Take-Off/Landing
- **Traffic Pattern:** Standard Path associated with Runway Number, to Left/Right of Runway
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **"Departure"/ "Approach" Frequencies:** Controls departure/Approach through Class C Airspace.

Prerequisite:

- *Airport/Facilities Directory*
- *Chart*
- *Pilots Guide to Airports*: (Optional)

Task:

1. From **Flight Planner: Plan** webpage, click on **Home**, to display **"Home"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.

NOTE: Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

6. Click on **Back**, to re-display **Flight Planner: Plan** webpage.

Result:

Information will be used to generate following print-outs, which provide the following required information:

- **"Home: Take-Off:** Used for Taking Off from Home Airport
- **"Home: Landing":** Used for landing at Home airport (return trip)

6 "DESTINATION" FORM

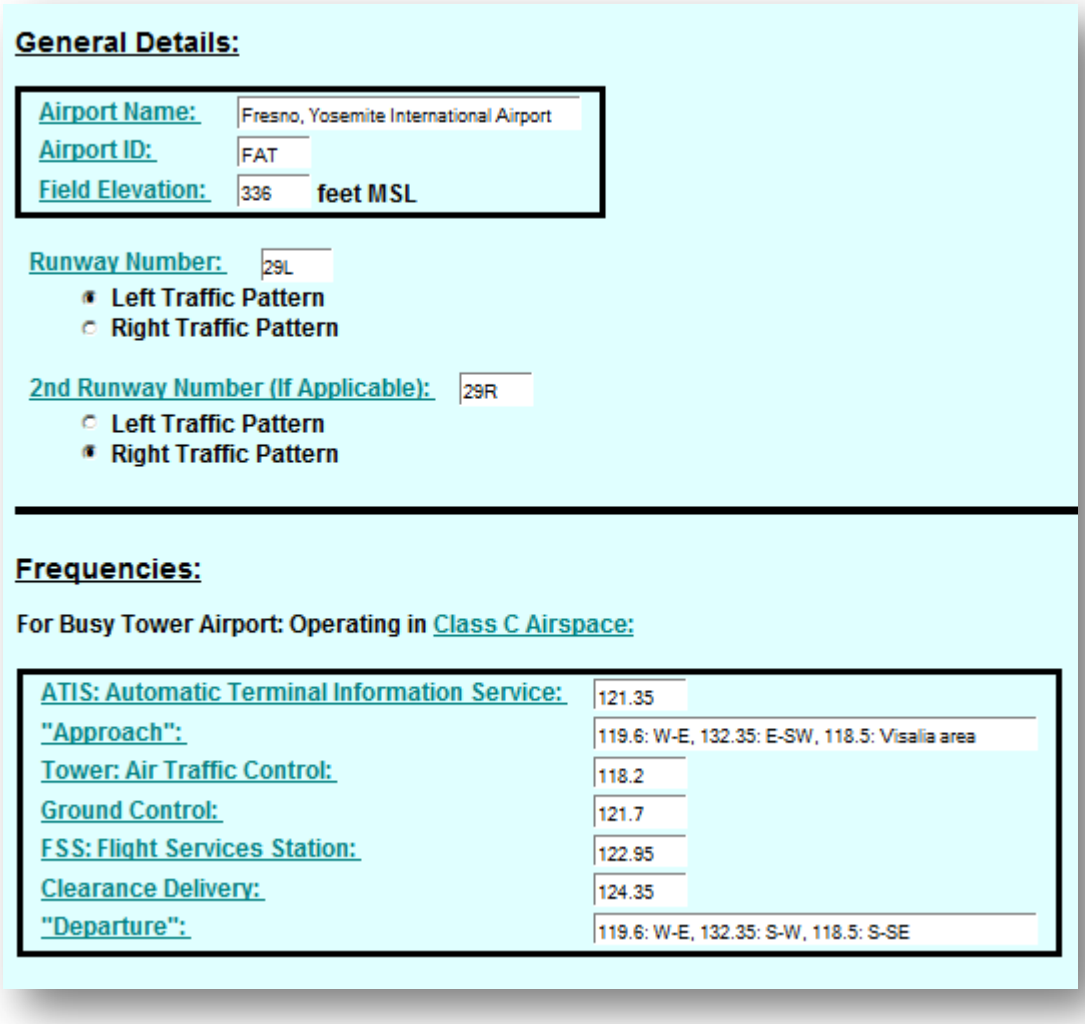

Figure 6-1: "DESTINATION" Form

NOTE: All examples in this chapter use a Cessna 152 for aircraft, and "Fresno, Yosemite International Airport" for Destination, as a Tower Airport operating in Class C Airspace.

"Destination" Form: Provides convenient way to organize following required information for Destination:

- **Airport Name:** Name of city and airport
- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, in Feet MSL
- **Runway Number:** Runway assigned for Take-Off/Landing
- **Traffic Pattern:** Standard Path associated with Runway Number, to Left/Right of Runway
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information
- **"Departure"/"Approach" Frequencies:** Controls departure/approach through Class C Airspace.
- **Tower Frequency:** Controls Airspace surrounding Airport.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.

Prerequisite:

- *Airport/Facilities Directory*
- *Chart* and Plotter
- *Pilots Guide to Airports*: (Optional)

Task:

1. From **Flight Planner: Plan** webpage, click on **Destination**, to display **"Destination"** form.
2. Fill in form.
3. Click on **Validate Form** button (at bottom of form), to display "Form Validation" webpage, per following example.

NOTE: Any errors or omissions will be displayed in red.

Click on Browser's back arrow to return to form.

4. Make any corrections, as necessary.
5. Click on **Submit** button (at bottom of form), to submit entered information.

NOTE: Click on "Reset" if you made a mistake, and wish to re-enter the information.

6. Click on **Back**, to re-display **Flight Planner: Plan** webpage.

Result:

Information will be used to generate following print-outs, which provide the following required information:

- **"Destination: Landing":** Used for Landing at Destination airport.
- **"Destination: Take-Off":** Used for Taking Off from Destination Airport (return trip)

7 TRAFFIC PATTERN: SET OF DISPLAYS

Figure 7-1: TRAFFIC PATTERN: Set of Displays

NOTE: All examples in this chapter use "San Jose, Mineta International Airport" for Departure Point, and "Fresno, Yosemite International Airport" for Destination, as two Tower Airports operating in Class C Airspace.

Traffic Pattern: Set of Displays: Displays following Set of Traffic Patterns:

- ***"Home: Take-Off":*** For Taking Off from Home airport
- ***"Destination: Landing":*** For Landing at Destination airport
- ***"Destination: Take-Off":*** For Taking Off from Destination Airport (return trip)
- ***"Home: Landing":*** For Landing at Home airport (return trip)

Based upon information filled into following two forms:

- **"Home" Form:** For Home airport
- **"Destination" Form:** For Destination airport

NOTE: Traffic Pattern information is also included in set of Print-Outs.

Task:

1. From **Flight Planner: Plan** webpage, click on **Traffic Pattern**, to display **Traffic Pattern** webpage.

7.1 "HOME: TAKE-OFF"

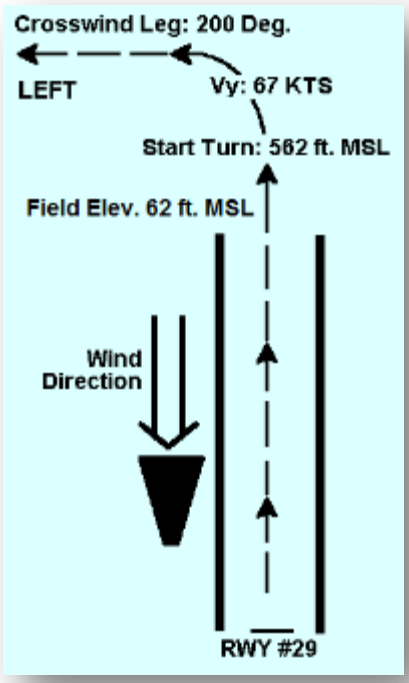

Figure 7-2: Traffic Pattern: "Home: Take-Off"

Displays following information for Taking Off from Home airport:

- **Runway Number:** (RWY): Runway assigned for Take-Off
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Altitude to Start Turn:** (Start Turn): 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg
- **Best Rate-of-Climb Speed:** (Vy): Results in best rate of climb, measured in Nautical Miles
- **Crosswind Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees

Task:

1. From **Traffic Pattern** webpage, click on **Home: Take-Off**, to display **"Home: Take-Off"** Traffic Pattern.
2. Once you have finished viewing displayed Traffic Pattern, click on **Back**, to re-display **Traffic Pattern** webpage.

7.2 "DESTINATION: LANDING"

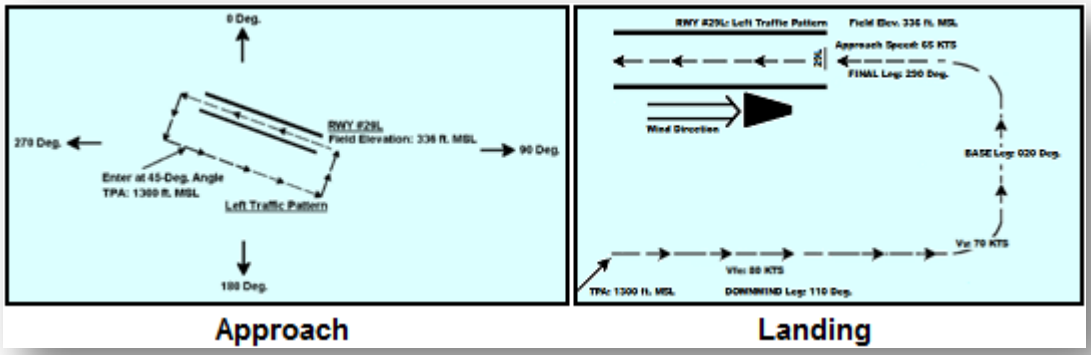

Figure 7-3: Traffic Pattern: "Destination: Landing"

Displays following information for Landing at Destination airport:

- *Approach*
- *Landing*

Task:

1. From **Traffic Pattern** webpage, click on **Destination: Landing**, to display **"Destination: Landing"** Traffic Pattern.
2. Once you have finished viewing displayed Traffic Pattern, click on **Back**, to re-display **Traffic Pattern** webpage.

7.2.1 APPROACH DETAILS

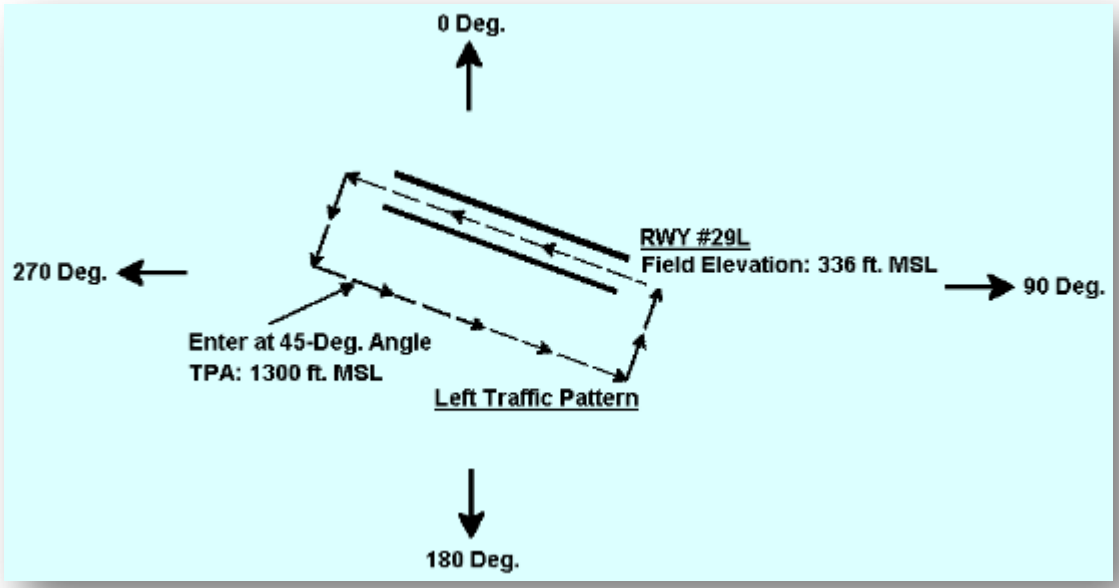

Figure 7-4: Traffic Pattern: "Destination: Landing": Approach Details

Following Approach details for Destination airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing
- **Traffic Pattern:** Standard path associated with Runway assigned for Landing

7.2.2 LANDING DETAILS

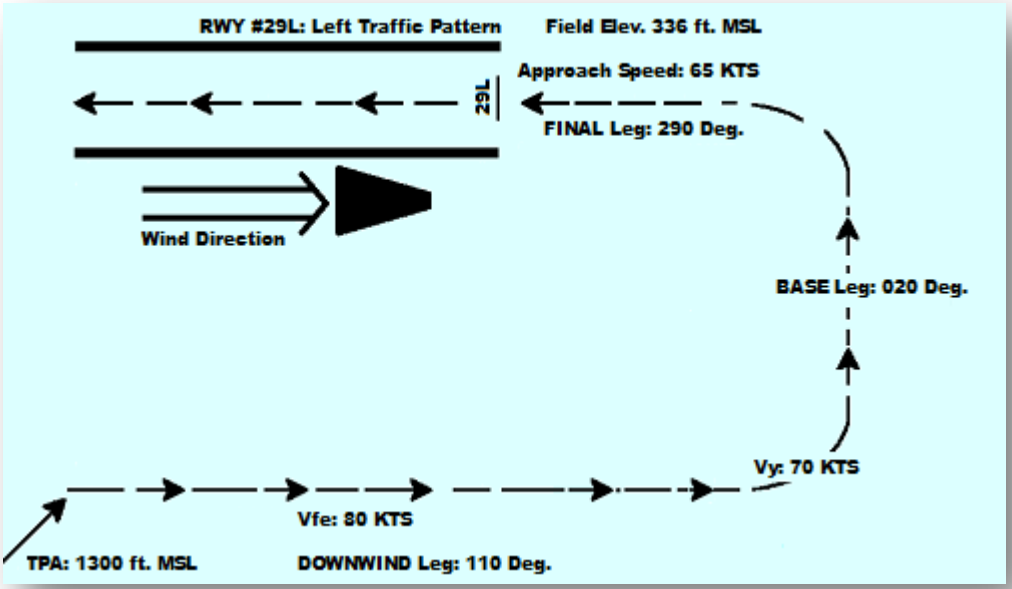

Figure 7-5: Traffic Pattern: "Destination: Landing": Landing Details

Following Landing details for Destination airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Flap-Extended Speed:** (Vfe): Highest speed permissible with wing flaps extended, in Nautical Miles
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite to Runway, in Degrees
- **Best Rate-of-Descent Speed:** (Vy): Results in best rate of descent, measured in Nautical Miles
- **Base Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees
- **Final Leg:** Leg of Traffic Pattern that includes Runway, in Degrees
- **Approach Speed:** Recommended Air Speed on Final Leg, for Landing, in Nautical Miles
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing

7.3 "DESTINATION: TAKE-OFF" (RETURN TRIP)

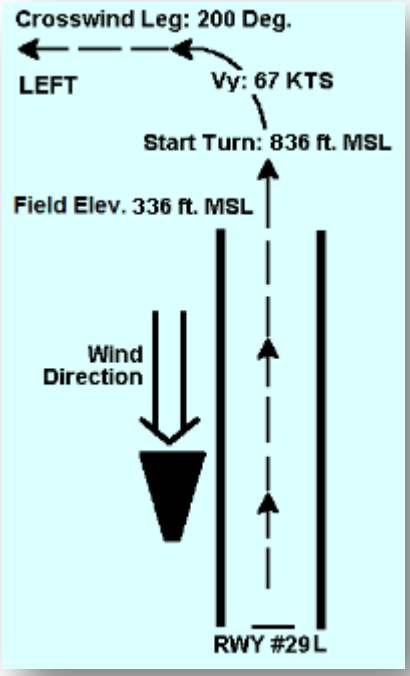

Figure 7-6: Traffic Pattern: "Destination: Take-Off"

Displays followed information for Taking Off from Destination Airport:

- **Runway Number:** (RWY): Runway assigned for Take-Off
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Altitude to Start Turn:** (Start Turn): 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg
- **Best Rate-of-Climb Speed:** (Vy): Results in best rate of climb, measured in Nautical Miles
- **Crosswind Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees

Task:

1. From **Traffic Pattern** webpage, click on **Destination: Take-Off**, to display **"Destination: Take-Off"** Traffic Pattern.
2. Once you have finished viewing displayed Traffic Pattern, click on **Back**, to re-display **Traffic Pattern** webpage.

7.4 "HOME: LANDING" (RETURN TRIP)

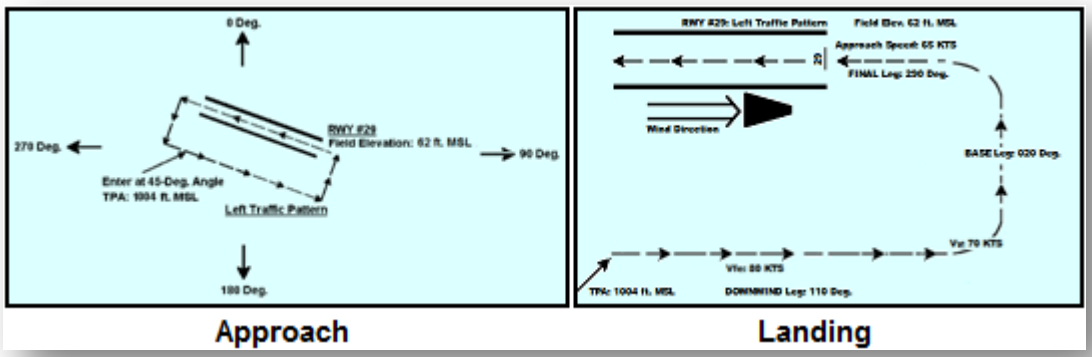

Figure 7-7: Traffic Pattern: "Home: Landing"

Displays following information for landing at Home airport:

- *Approach*
- *Landing*

Task:

1. From **Traffic Pattern** webpage, click on **Home: Landing**, to display **"Home: Landing"** Traffic Pattern.
2. Once you have finished viewing displayed Traffic Pattern, click on **Flight Planner**, to re-display **Flight Planner: Plan** webpage.

7.4.1 APPROACH DETAILS

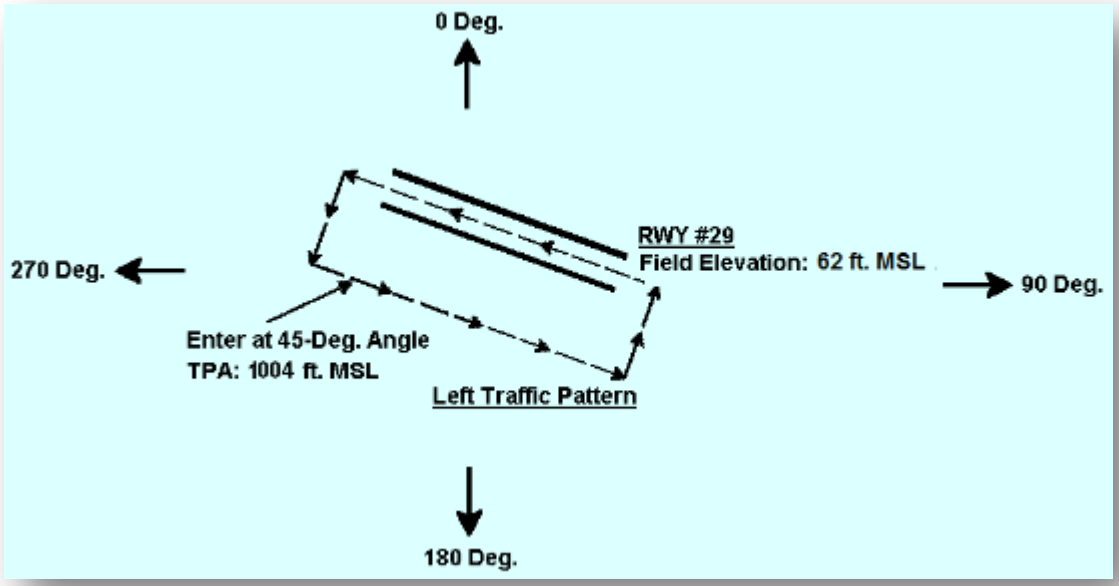

Figure 7-8: Traffic Pattern: "Home: Landing": Approach Details

Following Approach details for Home airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing
- **Traffic Pattern:** Standard path associated with Runway assigned for Landing

7.4.2 LANDING DETAILS

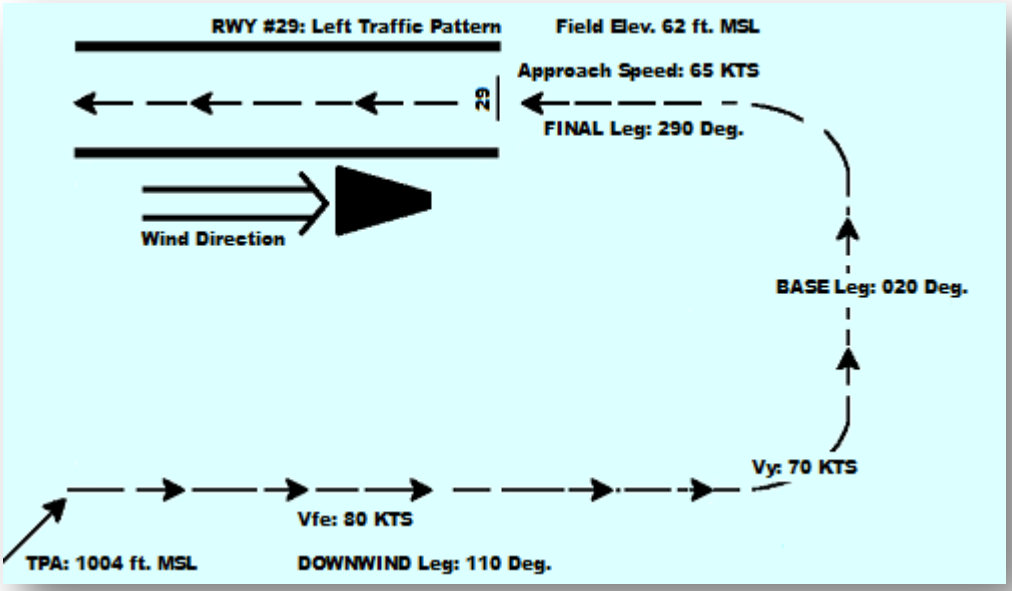

Figure 7-9: Traffic Pattern: "Home: Landing": Landing Details

Following Landing details for Home airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Flap-Extended Speed:** (Vfe): Highest speed permissible with wing flaps extended, in Nautical Miles
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite to Runway, in Degrees
- **Best Rate-of-Descent Speed:** (Vy): Results in best rate of descent, measured in Nautical Miles
- **Base Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees
- **Final Leg:** Leg of Traffic Pattern that includes Runway, in Degrees
- **Approach Speed:** Recommended Air Speed on Final Leg, for Landing, in Nautical Miles
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing


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8 PRINT: SET OF PRINT-OUTS

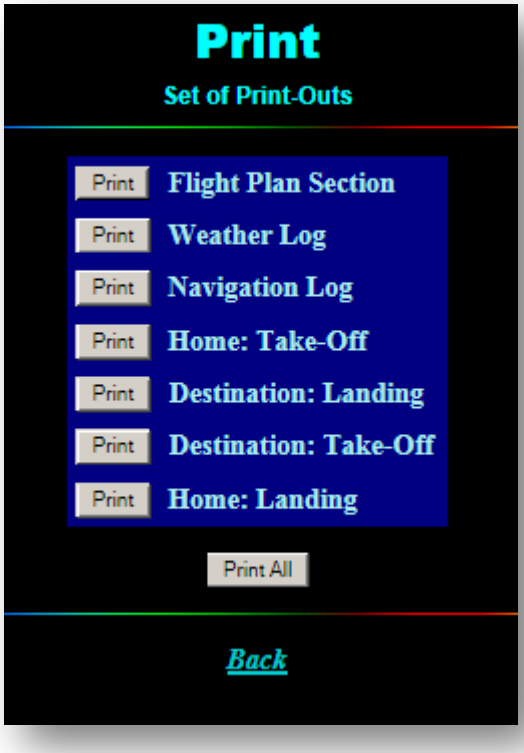


Figure 8-1: PRINT: Set of Print-Outs

NOTE: Clicking on "Print All" button will print out entire set.

Print: Set of Print-Outs: Prints out following set of print-outs which provide following information:

- ***"Flight Plan Section":*** General flight-related information used for filing with FAA Briefer at start of Flight
- ***"Weather Log":*** Weather-related information used for pre-flight weather planning and avoiding certain hazardous situations during Flight
- ***"Navigation Log":*** Navigation-related information used for pre-flight navigation planning and keeping track of progress during Flight
- ***"Home: Take-Off":*** For Taking Off from Home airport.
- ***"Destination: Landing":*** For Landing at Destination airport.
- ***"Destination: Take-Off":*** For Taking Off from Destination Airport (return trip).
- ***"Home: Landing":*** For landing at Home airport (return trip).

Based upon organized required information filled into following forms, per following chapters/sub-chapters:

- ***4.1: "Flight Plan: General" Form:*** General flight-related information
- ***4.2: "Flight Plan: Aircraft" Form:*** Aircraft-related information
- ***4.3: "Flight Plan: Route & Distance" Form:*** Navigation-related information
- ***4.4: "Flight Plan: Weather" Form:*** Weather-related information
- ***5: "Home" Form:*** For Home airport
- ***6: "Destination" Form:*** For Destination airport

Task:

1. From **Flight Planner: Plan** webpage, click on **Print**, to display **Print** webpage.

8.1 "FLIGHT PLAN SECTION"

1. Type of Flight	*VFR*
2. Aircraft ID	*54554*
3. Aircraft Type/Equipment	*Cessna 152*
4. True Air Speed	*110.8 Nautical Miles*
5. Departure Point	*San Jose, Mineta International Airport*
6. Departure Time	*1600 Zulu Time*
7. Cruising Altitude	*5500 Feet*
8. Route of Flight	*San Martin, South Co. airport* *Los Banos Muni Airport* *Madera Muni Airport*
9. Destination	*Fresno, Yosemite International Airport*
10. Total Estimated Time Enroute	*1 Hour and 27 Minutes*
11. Remarks	*None*
12. Fuel On Board	*3 Hours and 38 Minutes*
13. Alternate Airport(s)	*Madera Muni airport*
14. Pilots Name, Address, Tel. No., & Aircraft Home Base	*Jackie Bolen* *3131 Homestead Rd. #10K* *Santa Clara, CA 95051* *408-246-8474*
15. No. Aboard	*1 Person*
16. Color(s) of Aircraft	*Blue and White*
17. Destination Contact/Tel. (Optional)	*None*

Figure 8-2: "Flight Plan Section" Print-Out

"Flight Plan Section" Print-Out: Provides following general flight-related information used for filing with FAA Briefer at start of Flight:

- **Type of Flight:** Visual Flight Rules, Instrument Flight Rules, or Defense Visual Flight Rules
- **Aircraft ID:** Aircraft's license number, usually starting with "N"
- **Aircraft Type/Equipment:** Aircraft make and model, and any special equipment aboard aircraft
- **True Air Speed:** Air Speed used for filing Flight Plan with FAA Briefer, in Nautical Miles
- **Departure Point:** Name of Home city and airport
- **Departure Time:** Proposed Departure Time: Planned Departure Time, listed in Zulu Time
- **Cruising Altitude:** Level portion of aircraft travel that is most fuel-efficient
- **Route of Flight:** Set of selected recognizable Check Points positively identified from the air
- **Destination:** Name of Destination city and airport used for Arrival
- **Fuel On Board:** Aircraft's total fuel, without Reserve Fuel
- **Alternate Airport:** Designated airport where aircraft can land if Destination inadvisable
- **Pilot's Name, Address, Telephone Number, etc.:** Your information
- **No. Aboard:** Number of individuals aboard aircraft, including yourself
- **Color of Aircraft:** May be multiple colors.

Task:

1. From **Print** webpage, click on **Print** button associated with **Flight Plan Section**, to print-out **"Flight Plan Section"**.

8.2 "WEATHER LOG"

Figure 8-3: "Weather Log" Print-Out

"Weather Log" Print-Out: Provides following weather-related information used for pre-flight weather planning and avoiding certain hazardous situations during Flight:

- **Visibility:** Greatest distance an observer can see and identify objects, in Nautical Miles
- **Ceiling:** Cloud Layer: Height above Earth's surface of lowest layer of clouds
- **Cloud Type:** Type of Clouds
- **Precipitation:** Water particles that fall from the atmosphere and reach the ground
- **Obstructions:** Particular matter in atmosphere that obstructs/reduces Pilot's visibility
- **Wind Direction**
- **Wind Velocity:** Speed: In Nautical Miles
- **Temperature:** Air Temperature: In Degrees Centigrade
- **Dew Point:** Temperature where water vapor will condense into liquid water, in Degrees Centigrade
- **Icing & Freezing Level:** Height above Earth's surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft
- **Turbulence:** Turbulent movement of air masses caused when bodies of air meet
- **Cloud Tops:** Cloud Height usually associated with Turbulence
- **Front:** Leading edge of air masses with different density
- **Low/High Pressure Center:** Region of Earth's atmosphere where air pressure is low/high

For following locations:

- *Home*
- *Enroute*
- *Destination*
- *Alternate*

Task:

1. From **Print** webpage, click on **Print** button associated with **Weather Log**, to print-out **"Weather Log"**.

8.2.1 FOR HOME:

HOME:	SAN JOSE, MINETA INTERNAT'L AIRPT:
Reported: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Forecast: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Winds Aloft:	
Wind Direction	*300 Degrees*
Wind Velocity	*10 KTS*
Temperature	*19 Degrees C*
Dew Point	*5 Degrees C*
Altimeter Setting	*29.92 inHg*
Icing and Freezing Level:	*None*
Turbulence and Cloud Tops:	*None*
Position of Fronts, Lows, and Highs:	*None*

Figure 8-4: "Weather Log" Print-Out: For Home

8.2.2 FOR ENROUTE:

ENROUTE:	ENROUTE:
Reported: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Forecast: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Winds Aloft:	
Wind Direction	*290 Degrees*
Wind Velocity	*18 KTS*
Temperature	*35 Degrees C*
Dew Point	*5 Degrees C*
Altimeter Setting	*29.92 inHg*
Icing and Freezing Level:	*None*
Turbulence and Cloud Tops:	*None*
Position of Fronts, Lows, and Highs:	*None*

Figure 8-5: "Weather Log" Print-Out: For Enroute

8.2.3 FOR DESTINATION:

DESTINATION:	FRESNO, YOSEMITE INTERNAT'L AIRPT:
Reported: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Forecast: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Winds Aloft:	
Wind Direction	*290 Degrees*
Wind Velocity	*18 KTS*
Temperature	*35 Degrees C*
Dew Point	*5 Degrees C*
Altimeter Setting	*29.92 inHg*
Icing and Freezing Level:	*None*
Turbulence and Cloud Tops:	*Thunderstorms in the Sierras*
Position of Fronts, Lows, and Highs:	*Thunderstorms in the Sierras*

Figure 8-6: "Weather Log" Print-Out: For Destination

8.2.4 FOR ALTERNATE AIRPORT:

ALTERNATE:	MADERA MUNI AIRPORT:
Reported: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Forecast: Ceiling, Visibility, & Precip.	
Visibility	*10 NM*
Ceiling	*Clear*
Cloud Type	*Clear*
Precipitation	*None*
Obstructions	***None***
Winds Aloft:	
Wind Direction	*290 Degrees*
Wind Velocity	*18 KTS*
Temperature	*35 Degrees C*
Dew Point	*5 Degrees C*
Altimeter Setting	*29.92 inHg*
Icing and Freezing Level:	*None*
Turbulence and Cloud Tops:	*Thunderstorms in the Sierras*
Position of Fronts, Lows, and Highs:	*Thunderstorms in the Sierras*

Figure 8-7: "Weather Log" Print-Out: For Alternate Airport

8.3 "NAVIGATION LOG"

NOTES:	NOTES:
Total Usable Fuel	*24.5 Gallons*
Climb Gallons	*0.9 Gallons*
Climb Time	*9 Minutes*
Descent Time	*12 Minutes*
HOME:	SAN JOSE, MINETA INTERNAT'L AIRPT
FIRST CHECK PT:	SAN MARTIN, SO. COUNTY AIRPORT:
VOR	*None*
Cruising Altitude	*5500 feet*
True Air Speed	*110.8*
Compass Heading	*125 Degrees*
Distance	*24 NM (Distance, 94 NM (Remaining)*
Ground Speed	*107 KTS*
Estimated Time Enroute	*14 + 9 Minutes*
Estimated Time of Arrival	*1623 Zulu Time*
Fuel	***1.9 + 0.9 Gallons (Consumed), 21.7 Gallons (Remaining)***
SECOND CHECK PT:	LOS BANOS MUNI AIRPORT:
VOR	*ID = PXN, Frequency = 112.6*
Cruising Altitude	*5500 feet*
True Air Speed	*110.8*
Compass Heading	*75 Degrees*
Distance	*35 NM (Distance), 59 NM (Remaining)*
Ground Speed	*107 KTS*
Estimated Time Enroute	*19.6 Minutes*
Estimated Time of Arrival	*1642.6 Zulu Time*
Fuel	***2.6 Gallons (Consumed), 19.1 Gallons (Remaining)***
THIRD CHECK PT:	MADERA MUNI AIRPORT:
VOR: ID, Frequency	*ID = CZQ, Frequency = 112.9*
Cruising Altitude	*5500 feet*
True Air Speed	*110.8*
Compass Heading	*85 Degrees*
Distance	*37 NM (Distance), 22 NM (Remaining)*
Ground Speed	*107 KTS*
Estimated Time Enroute	*20.7 Minutes*
Estimated Time of Arrival	*1703.3 Zulu Time*
Fuel	***2.8 Gallons (Consumed), 16.3 Gallons (Remaining)***
DESTINATION:	FRESNO, YOSEMITE, INTERNAT'L AIRPT:
VOR	*ID = CZQ, Frequency = 112.9*
Cruising Altitude	*3500 feet*
True Air Speed	*110.8*
Compass Heading	*120 Degrees*
Distance	*22 NM (Distance), 0 NM (Remaining)*
Ground Speed	*107 KTS*
Estimated Time Enroute	*12 + 12 Minutes*
Estimated Time of Arrival	*1728 Zulu Time*
Fuel	***1.6 + 1.6 Gallons (Consumed), 13.1 Gallons (Remaining)***
TOTALS	TOTALS
Distance	*118 NM*
Estimated Time Enroute	*87.3 Minutes*
Fuel Consumed	*11.4 Gallons*

Figure 8-8: "Navigation Log" Print-Out

"Navigation Log" Print-Out: Provides following navigation-related information used for pre-flight navigation planning and keeping track of progress during Flight:

- **Total Usable Fuel:** Aircraft's total fuel available for flight planning
- **Climb Gallons:** Amount of fuel required for aircraft to climb to Cruising Altitude
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude
- **VOR Identification & Frequency:** VHF Omni-directional Range: Radio navigational system
- **Cruising Altitude:** Level portion of aircraft travel, where flight is most fuel-efficient
- **True Air Speed:** Air Speed used for filing Flight Plan with FAA Briefer, in Nautical Miles
- **Compass Heading:** Heading displayed by aircraft's Compass during flight
- **Distance:** In Nautical Miles
- **Ground Speed:** Speed of aircraft in relation to the ground, in Nautical Miles
- **Estimated Time Enroute:** Expected duration of time
- **Estimated Time of Arrival:** Estimated Time to arrive at a location, listed in Zulu Time
- **Fuel Consumed**

Task:

1. From **Print** webpage, click on **Print** button associated with **Navigation Log**, to print-out **"Navigation Log"**.

8.4 "HOME: TAKE-OFF"

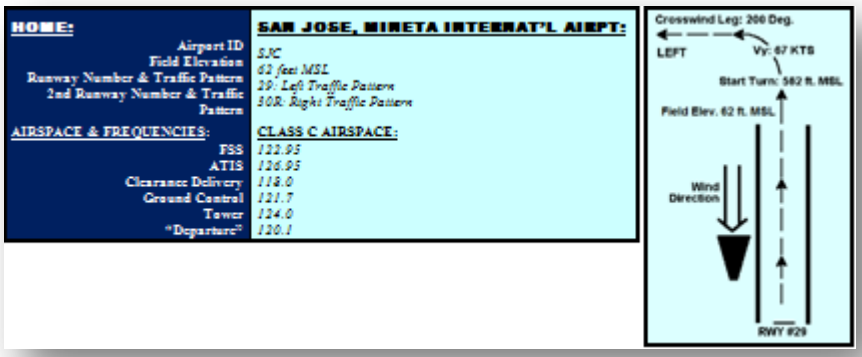


Figure 8-9: "Home: Take-Off" Print-Out

"Home: Take-Off" Print-Out: Provides following required information used for Taking Off from Home airport:

- *General Airport Information*
- *Take-Off Details*

Task:

1. From **Print** webpage, click on **Print** button associated with **Home: Take-Off**, to print-out **"Home: Take-Off"**.

8.4.1 GENERAL AIRPORT INFORMATION

HOME:	SAN JOSE, MINETA INTERNAT'L AIRPT:
Airport ID	*SJC*
Field Elevation	*62 feet MSL*
Runway Number & Traffic Pattern	*29: Left Traffic Pattern*
2nd Runway Number & Traffic Pattern	*30R: Right Traffic Pattern*
AIRSPACE & FREQUENCIES:	**CLASS C AIRSPACE:**
FSS	*122.95*
ATIS	*126.95*
Clearance Delivery	*118.0*
Ground Control	*121.7*
Tower	*124.0*
"Departure"	*120.1*

Figure 8-10: "Home: Take-Off" Print-Out: General Airport Information

Following general airport information for Taking Off from Home airport:

- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number & Traffic Pattern:** Runway assigned for Take-Off, along with associated standard path
- **2nd Runway Number & Traffic Pattern:** If Applicable
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **"Departure" Frequency:** Controls departure through Class C Airspace.

8.4.2 TAKE-OFF DETAILS

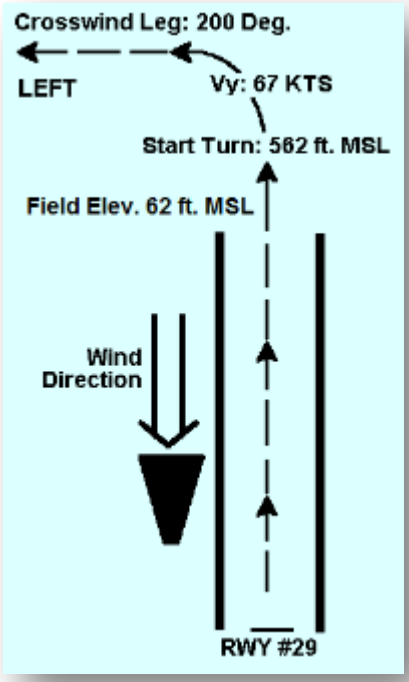


Figure 8-11: "Home: Take-Off" Print-Out: Take-Off Details

Following Take-Off details for Home airport:

- **Runway Number:** (RWY): Runway assigned for Take-Off
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Altitude to Start Turn:** (Start Turn): 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg
- **Best Rate-of-Climb Speed:** (Vy): Results in best rate of climb, measured in Nautical Miles
- **Crosswind Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees

8.5 "DESTINATION: LANDING"

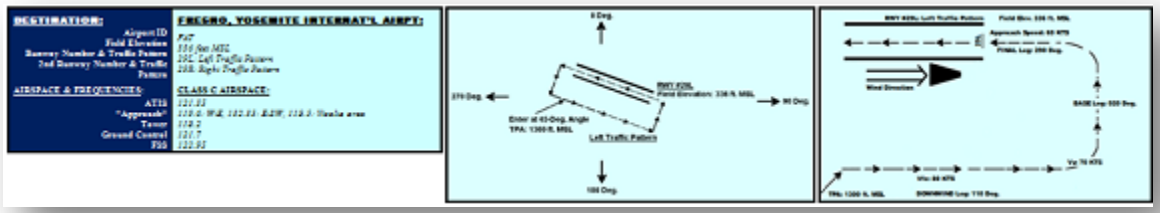


Figure 8-12: "Destination: Landing" Print-Out

"Destination: Landing" Print-Out: Provides following required information used for Landing at Destination airport:

- *General Airport Information*
- *Approach Details*
- *Landing Details*

Task:

1. From **Print** webpage, click on **Print** button associated with **Destination: Landing**, to print-out **"Destination: Landing"**.

8.5.1 GENERAL AIRPORT INFORMATION

DESTINATION:	FRESNO, YOSEMITE INTERNAT'L AIRPT:
Airport ID	*FAT*
Field Elevation	*336 feet MSL*
Runway Number & Traffic Pattern	*29L: Left Traffic Pattern*
2nd Runway Number & Traffic Pattern	*29R: Right Traffic Pattern*
AIRSPACE & FREQUENCIES:	**CLASS C AIRSPACE:**
ATIS	*121.35*
"Approach"	*119.6: W-E, 132.35: E-SW, 118.5: Visalia area*
Tower	*118.2*
Ground Control	*121.7*
FSS	*122.95*

Figure 8-13: "Destination: Landing" Print-Out: General Airport Information

Following general airport information for Landing at Destination airport:

- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number & Traffic Pattern:** Runway assigned for Landing, along with associated standard path
- **2nd Runway Number & Traffic Pattern:** If Applicable
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **"Approach" Frequency:** Controls approach through Class C Airspace.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.

8.5.2 APPROACH DETAILS

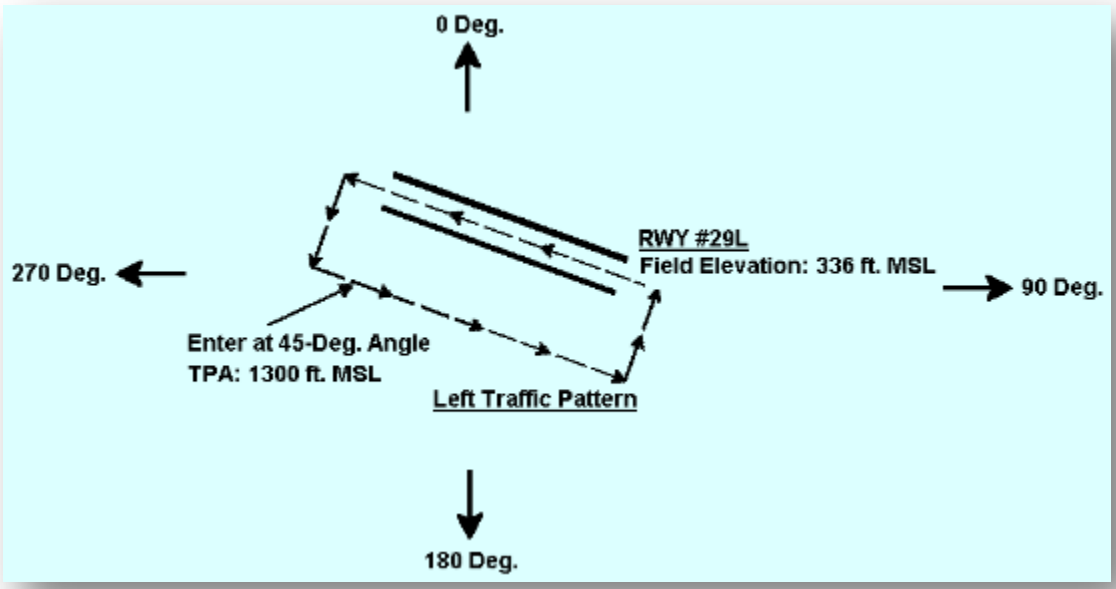


Figure 8-14: "Destination: Landing" Print-Out: Approach Details

Following Approach details for Destination airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Runway Number:** (RWY): Runway assigned for Landing
- **Traffic Pattern:** Standard path associated with Runway assigned for Landing

8.5.3 LANDING DETAILS

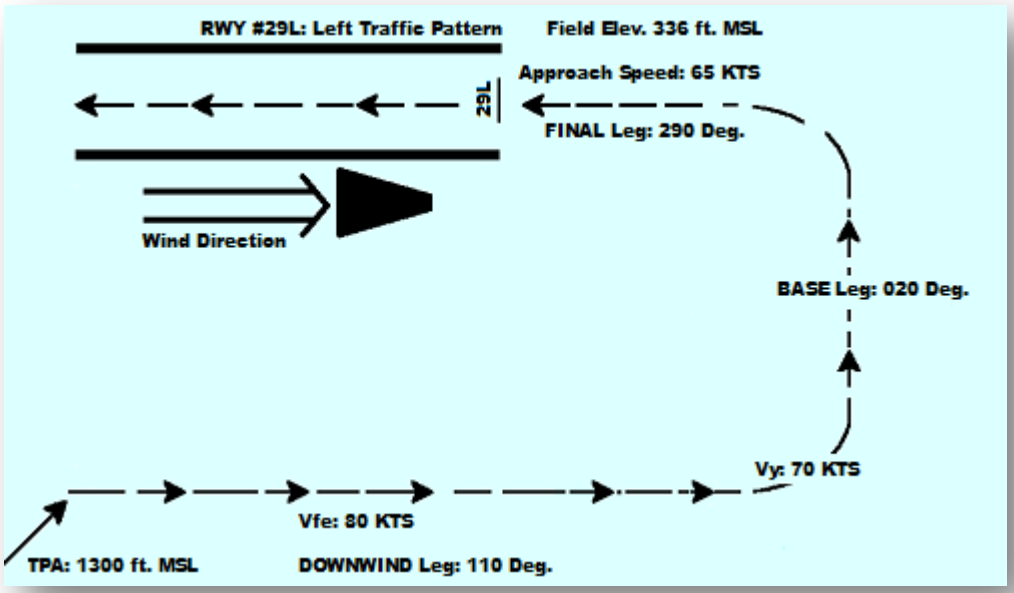


Figure 8-15: "Destination: Landing" Print-Out: Landing Details

Following Landing details for Destination airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Flap-Extended Speed:** (Vfe): Highest speed permissible with wing flaps extended, in Nautical Miles
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite to Runway, in Degrees
- **Best Rate-of-Descent Speed:** (Vy): Results in best rate of descent, measured in Nautical Miles
- **Base Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees
- **Final Leg:** Leg of Traffic Pattern that includes Runway, in Degrees
- **Approach Speed:** Recommended Air Speed on Final Leg, for Landing, in Nautical Miles
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing

8.6 "DESTINATION: TAKE-OFF" (RETURN TRIP)

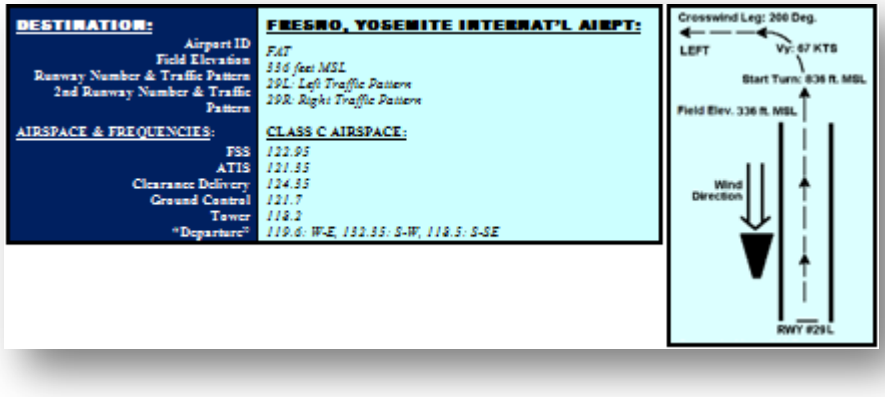


Figure 8-16: "Destination: Take-Off" Print-Out

"Destination: Take-Off" Print-Out: Provides following required information used for Taking Off from Destination Airport:

- *General Airport Information*
- *Take-Off Details*

Task:

1. From **Print** webpage, click on **Print** button associated with **Destination: Take-Off**, to print-out **"Destination: Take-Off"**.

8.6.1 GENERAL AIRPORT INFORMATION

DESTINATION:	FRESNO, YOSEMITE INTERNAT'L AIRPT:
Airport ID	*FAT*
Field Elevation	*336 feet MSL*
Runway Number & Traffic Pattern	*29L: Left Traffic Pattern*
2nd Runway Number & Traffic Pattern	*29R: Right Traffic Pattern*
AIRSPACE & FREQUENCIES:	**CLASS C AIRSPACE:**
FSS	*122.95*
ATIS	*121.35*
Clearance Delivery	*124.35*
Ground Control	*121.7*
Tower	*118.2*
"Departure"	*119.6: W-E, 132.35: S-W, 118.5: S-SE*

Figure 8-17: "Destination: Take-Off" Print-Out: General Airport Information

Following general airport information for Taking Off from Destination airport:

- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number & Traffic Pattern:** Runway assigned for Take-Off/Landing, along with associated standard path
- **2nd Runway Number:** If Applicable
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **"Departure" Frequency:** Controls departure through Class C Airspace.

8.6.2 TAKE-OFF DETAILS

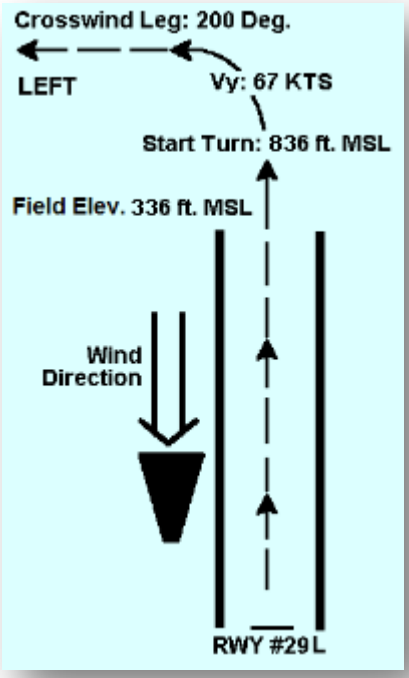


Figure 8-18: "Destination: Take-Off" Print-Out: Take-Off Details

Following Take-Off details for Destination airport:

- **Runway Number:** (RWY): Runway assigned for Take-Off
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Altitude to Start Turn:** (Start Turn): 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg
- **Best Rate-of-Climb Speed:** (Vy): Results in best rate of climb, measured in Nautical Miles
- **Crosswind Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees

8.7 "HOME: LANDING" (RETURN TRIP)

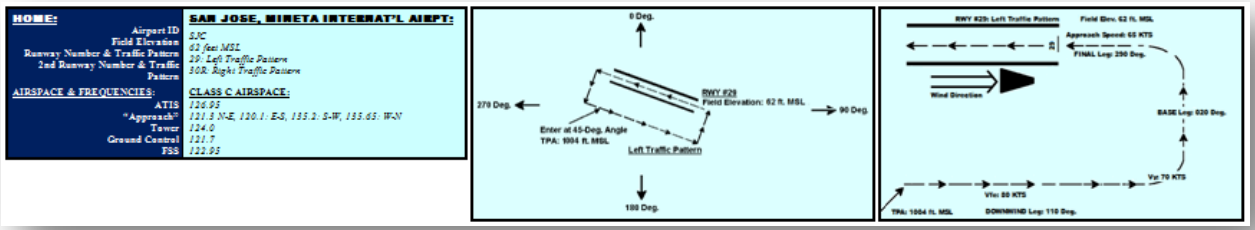


Figure 8-19: "Home: Landing" Print-Out

"Home: Landing" Print-Out: Provides following required information used for landing at Home airport:

- *General Airport Information*
- *Approach Details*
- *Landing Details*

Task:

1. From **Print** webpage, click on **Print** button associated with **Home: Landing**, to print-out **"Home: Landing"**.
2. Once you have printed out **"Home: Landing,"** click on **Flight Planner**, to re-display **Flight Planner: Plan** webpage.

8.7.1 GENERAL AIRPORT INFORMATION

HOME:	SAN JOSE, MINETA INTERNAT'L AIRPT:
Airport ID	*SJC*
Field Elevation	*62 feet MSL*
Runway Number & Traffic Pattern	*29: Left Traffic Pattern*
2nd Runway Number & Traffic Pattern	*30R: Right Traffic Pattern*
AIRSPACE & FREQUENCIES:	**CLASS C AIRSPACE:**
ATIS	*126.95*
"Approach"	*121.3 N-E, 120.1: E-S, 135.2: S-W, 135.65: W-N*
Tower	*124.0*
Ground Control	*121.7*
FSS	*122.95*

Figure 8-20: "Home: Landing" Print-Out: General Airport Information

Provides Following general airport information for landing at Home airport:

- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, measured in Feet MSL
- **Runway Number & Traffic Pattern:** Runway assigned for Take-Off/Landing, along with associated standard path
- **2nd Runway Number & Traffic Pattern:** If Applicable
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **"Approach" Frequency:** Controls approach through Class C Airspace.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.

8.7.2 APPROACH DETAILS

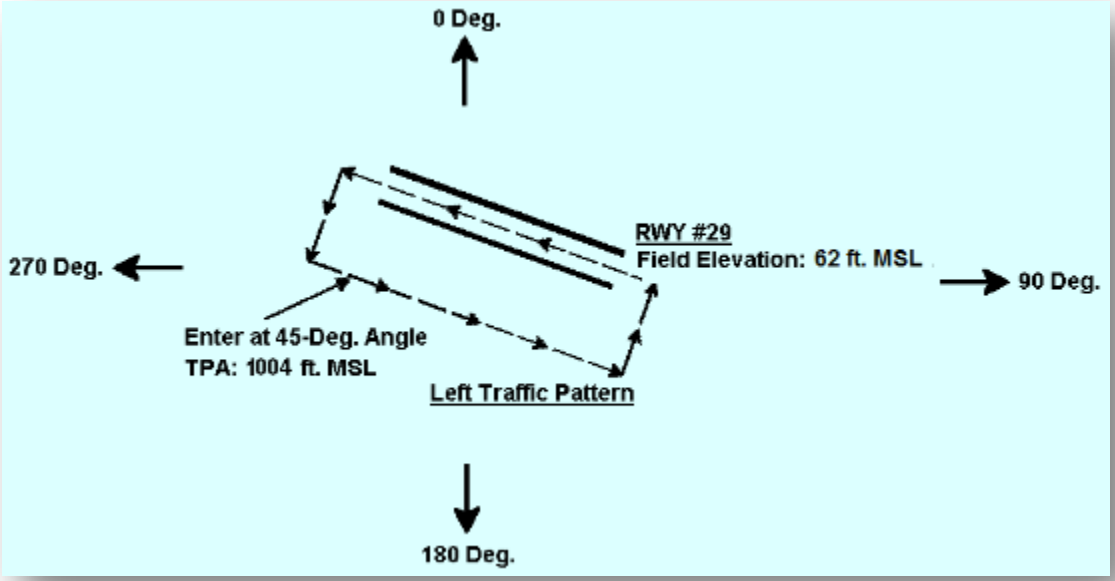


Figure 8-21: "Home: Landing" Print-Out: Approach Details

Following Approach details for Home airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Runway Number:** (RWY): Runway assigned for Landing
- **Traffic Pattern:** Standard path associated with Runway assigned for Landing

8.7.3 LANDING DETAILS

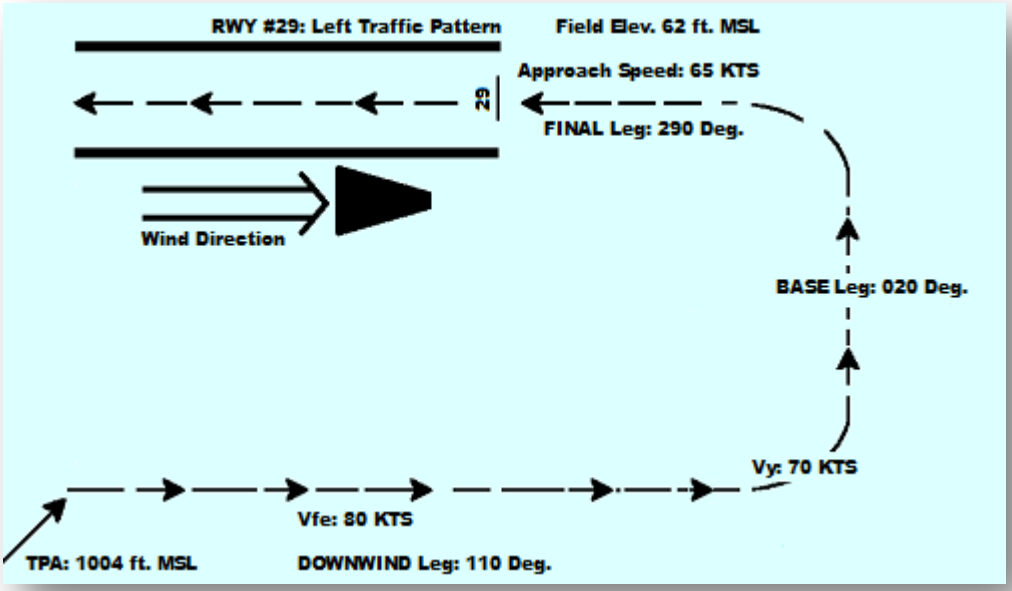


Figure 8-22: "Home: Landing" Print-Out: Landing Details

Following Landing details for Home airport:

- **Traffic Pattern Altitude:** (TPA): For Traffic Pattern associated with Runway assigned for Landing
- **Flap-Extended Speed:** (Vfe): Highest speed permissible with wing flaps extended, in Nautical Miles
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite to Runway, in Degrees
- **Best Rate-of-Descent Speed:** (Vy): Results in best rate of descent, measured in Nautical Miles
- **Base Leg:** Short leg of Traffic Pattern that runs perpendicular to Runway, in Degrees
- **Final Leg:** Leg of Traffic Pattern that includes Runway, in Degrees
- **Approach Speed:** Recommended Air Speed on Final Leg, for Landing, in Nautical Miles
- **Field Elevation:** (Field Elev.): Airport elevation, measured in Feet MSL
- **Runway Number:** (RWY): Runway assigned for Landing


AIRPORT/FACILITY DIRECTORY
SOUTHWEST U.S.
SW

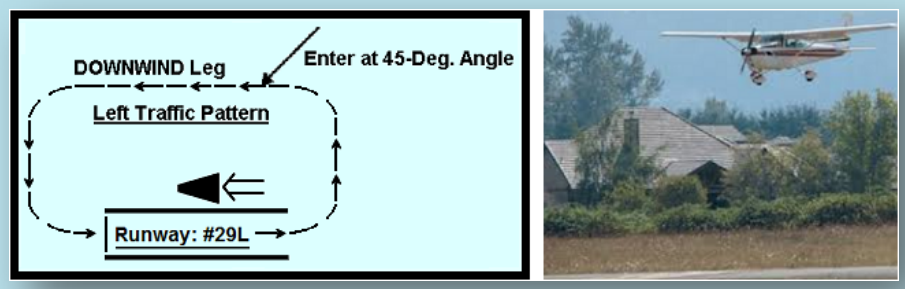
GLOSSARY

NOTE: All examples in the Glossary use a Cessna 152 for the aircraft, "San Jose, Mineta International Airport" for Departure Point, and "Fresno, Yosemite International Airport" for Destination, as two Tower Airports operating in Class C Airspace.

"1st Destination" Form: (Covered as "Destination"): Please see "Destination" Form.

"2nd Destination" Form: (Not Covered)

45-Degree Angle: For Landing: Entry into Traffic Pattern, at 45-Degree angle to Downwind Leg



NOTE: Left example shows diagram of entry into Traffic Pattern. Right shows actual Aircraft.

Air Speed & Air Speed Indicator: Instrument located in aircraft's Instrument Panel that displays Air Speed, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

NOTE: This example shows Air Speed Indicator displaying an Air Speed of 110 Nautical Miles.

Aircraft ID: Aircraft's license number, usually starting with "N", used to identify it in radio communications, and obtained from *Aircraft's Documentation*

EXAMPLE: 54554 (for "N54554")

Aircraft Type: Aircraft make and model, obtained from *Aircraft's Documentation*

EXAMPLE: Cessna 152

***Aircraft's Documentation*:**


STANDARD AIRWORTHINESS CERTIFICATE

N282ND	PIPER	2844024	NORMAL

NONE

JAN 28 2000

RICHARD L. MURDOCK

Includes following information, usually found in aircraft's glove compartment:

- Aircraft Registration
- Maintenance Records
- Aircraft-Specific Information

Airport/Facilities Directory: Required directory (green book) used for obtaining airport-related information, and purchased at a store that specializes in flying supplies

Airport ID: Unique 3-letter alpha-numeric identification used to represent airport, obtained from *Airport/Facilities Directory*

EXAMPLE:

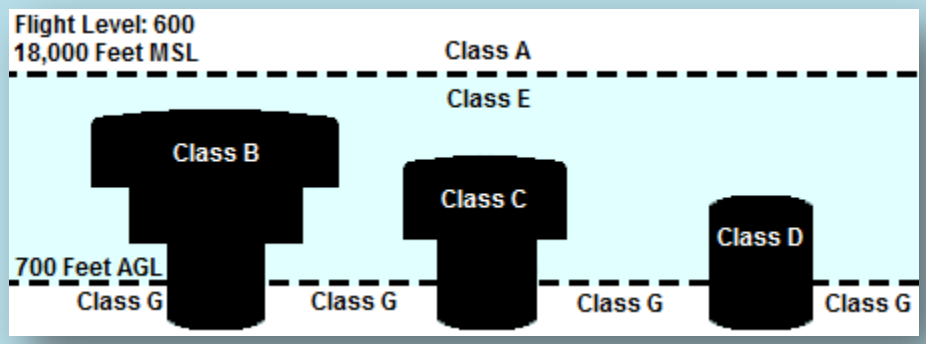
- **Departure Point:** SJC (for "San Jose, Mineta International Airport")
- **Destination:** FAT (for "Fresno, Yosemite International Airport")

Airport Name: Name of city and airport, obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** “San Jose, Mineta International Airport”
- **Destination:** “Fresno, Yosemite International Airport”

Airspace:



Comprises following types of airspace, obtained from *Chart*:

- **Class A:** Requires instrument rating.
- **Class B:** Established to separate arriving/departing traffic surrounding major airports
- **Class C:** Controlled, surrounding large airport, where Air Traffic Control uses radar to control traffic in airspace
- **Class D:** Controlled, surrounding at least one Tower airport
- **Class E:** Controlled, without communication requirements. Comprises majority of airspace within U.S.
- **Class F:** Designated for Special Use Airspace: Restricted or Advisory
- **Class G:** Used wherever other classes are not

EXAMPLE: Following two airports are in Class C Airspace:

- **Departure Point:** "San Jose, Mineta International Airport"
- **Destination:** "Fresno, Yosemite International Airport"

Alternate Airport: Designated airport where aircraft can land if intended Destination inadvisable, usually obtained from *Chart*, using Plotter

NOTE: This example uses “Madera Muni airport” as alternate to "Fresno, Yosemite International Airport."

Altimeter & Altimeter Setting: Altimeter is instrument located in aircraft's Instrument Panel that displays Altitude, in Feet.

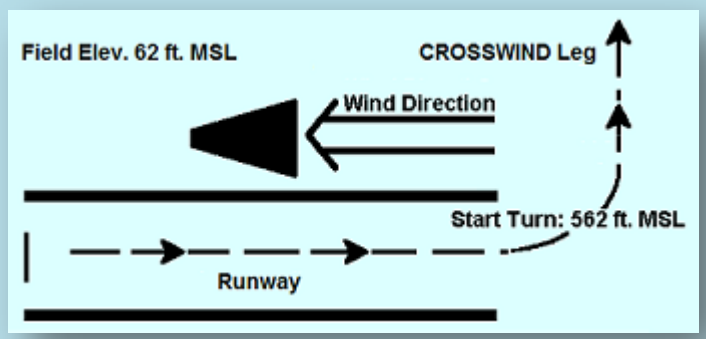
Altimeter Setting is Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg, and obtained from ATIS.

NOTE: This example shows an Altimeter with Altimeter Setting of 29.92 inHg.

Where:

- **inHg:** Inches of Mercury at 0 Degrees Centigrade Pressure Unit
- **0 Degrees Centigrade:** 32 Degrees Fahrenheit

Altitude to Start Turn: (Start Turn): For Take-Off: 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg, measured in Feet MSL



Calculated by adding 500 Feet to Field Elevation

EXAMPLE: 562 Feet MSL

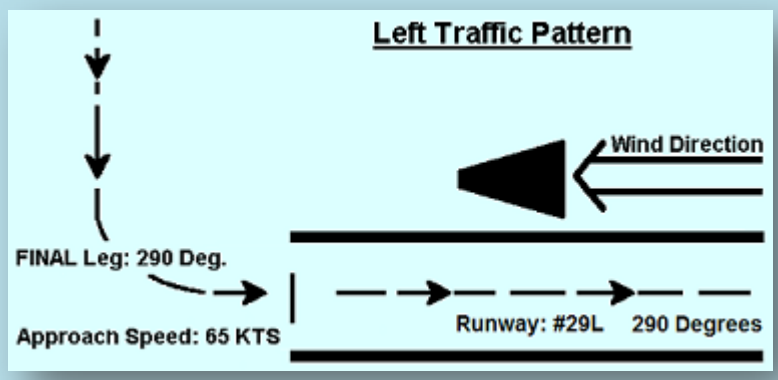
"Approach" Frequency: Used at busy Tower Airports operating in Class C Airspace, to control approach: Obtained from ATIS

NOTE: This example shows an aircraft approaching through Class C Airspace.

EXAMPLE:

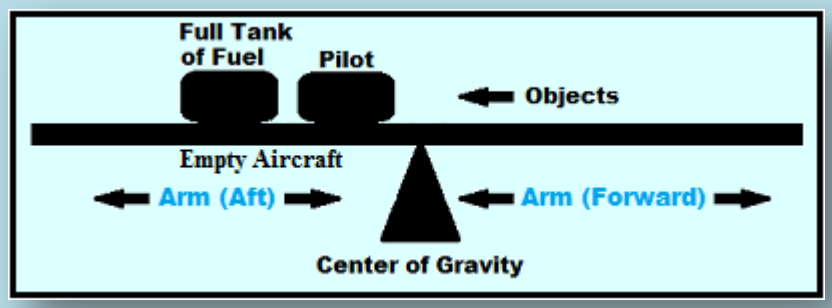
- 119.6: From West-East
- 132.35: From East-SouthWest
- 118.5: From Visalia area

Approach Speed: Recommended Air Speed on Final Leg, for Landing, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*



EXAMPLE: 65 KTS = 74.801 MPH

Arm: Object's distance from Datum (Empty Aircraft's Center of Gravity), measured in inches, and obtained from *Pilots Operator Handbook*



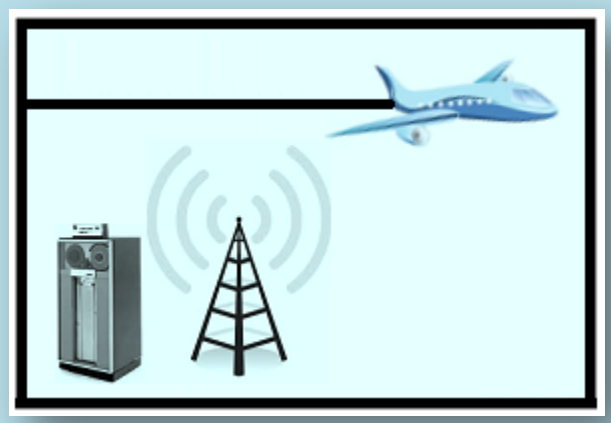
Where value will be:

- **Aft of aircraft's Datum:** Positive number
- **Forward of aircraft's Datum:** Negative number

EXAMPLE:

- **Empty Aircraft:** 37.4 Inches
- **Full Tank of Fuel:** 45.3 Inches
- **Pilot:** 37.0 Inches

ATIS Frequency: Automatic Terminal Information Service: Used at busy Tower Airports operating in Class C Airspace, to provide current weather information, as transmitted ATIS Recording on Receive Only frequency. Obtained from *Airport/Facilities Directory*.

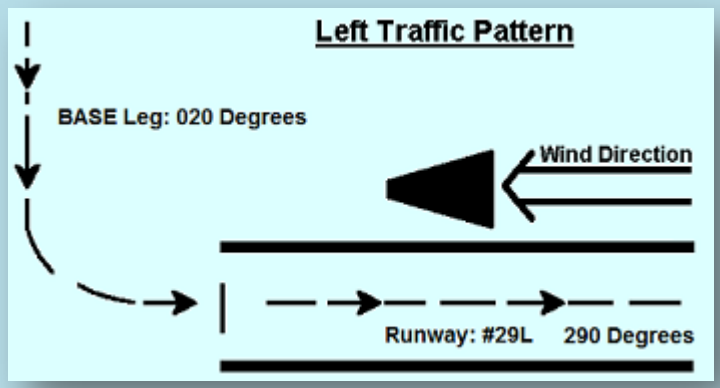


NOTE: Current weather information is recorded; then transmitted for retrieval by incoming/outgoing air traffic.

EXAMPLE:

- **Departure Point:** 126.95
- **Destination:** 121.35

Base Leg: For Landing: Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees



Calculated by multiplying Runway Number by 10, and adding/subtracting 90 Degrees, as applicable
EXAMPLE: Base Leg = 020 Degrees

Best Rate-of-Climb Speed (Vy): Speed that results in greatest increase in altitude in a given time, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

EXAMPLE: 67 KTS = 77.102 MPH

Best Rate-of-Descent Speed (Vy): Speed that results in best rate of decrease in altitude, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

EXAMPLE: 67 KTS = 77.102 MPH

Calculator: Everyday calculator used to calculate Distance, etc., purchased at store selling Stationary supplies.

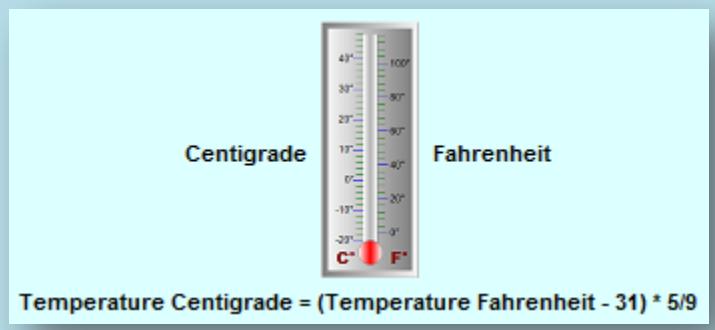
Ceiling: Cloud Layer: Height above earth's surface of lowest layer of clouds, measured in Feet, or "Clear," obtained from ATIS:

Clear

Cloud Layer

Center of Gravity: Heaviest part of Fully-Loaded Aircraft, calculated by dividing its Total Moment by its Total Weight

Centigrade: Degrees C:



Temperature scale where water is defined as follows, at standard atmospheric pressure:

- **Freezing Point:** 0 Degrees
- **Boiling Point:** 100 Degrees

Cessna 152: American two-seat, fixed tricycle gear, general aviation airplane, used primarily for flight training and personal use

Where: Tricycle Gear is landing gear arranged in tricycle fashion, with one nose wheel in front, and two main wheels slightly aft of center of gravity.

***Chart*:** Required aeronautical chart used for plotting Route of Flight, purchased at store specializing in flying supplies

Check Points: Set of selected recognizable landmarks along Route of Flight that can be positively identified from the air, obtained from *Chart*, using Plotter

EXAMPLE:

- **First Check Point:** "San Martin, South Co. Airport"
- **Second Check Point:** "Los Banos Muni airport"
- **Third Check Point:** "Madera Muni airport"

Class A/B Airspace:

NOTE: For Class A, this example uses two Fighter Jets above 18,000 Feet MSL; for Class B, "San Francisco International Airport."

Comprises following types of airspace, obtained from *Chart*:

- **Class A:** Airspace above 18,000 Feet MSL, which requires instrument rating
- **Class B:** Established to separate arriving/departing traffic surrounding major airports

IMPORTANT! As a Student Pilot, Class A/B Airspace should be avoided.

Class C Airspace: Controlled Airspace surrounding large airport, where Air Traffic Control uses radar to control traffic in airspace. Obtained from *Chart*

EXAMPLE: Following two airports are in Class C Airspace:

- **Departure Point:** "San Jose, Mineta International Airport"
- **Destination:** "Fresno, Yosemite International Airport"

Class E/G Airspace:

NOTE: For Class E/G Airspace, this example uses "Madera Muni airport."

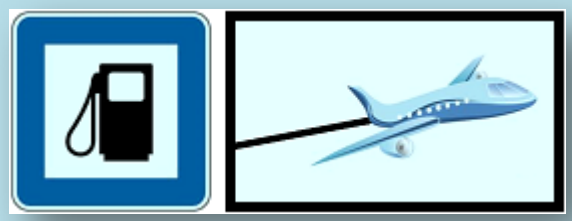
Comprises following types of airspace, obtained from *Chart*:

- **Class E:** Controlled, without communication requirements
- **Class G:** Used wherever other classes are not

Clearance Delivery Frequency: Used at busy Tower Airports operating in Class C Airspace, to allow Air Traffic Control **(Tower)** to relay clearances to departing traffic. Obtained from *Airport/Facilities Directory*

EXAMPLE: **Departure Point:** 118.0

Climb Gallons: Amount of fuel required for aircraft to climb to Cruising Altitude after Take-Off, obtained from *Pilots Operator Handbook*



EXAMPLE: 0.9 Gallons

Climb Time: Time required for aircraft to climb to Cruising Altitude after Take-Off, measured in Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 9 Minutes

Cloud Tops: Cloud Height usually associated with Turbulence, and measured in Feet

NOTE: This example shows Cloud Top for Thunderstorm.

Cloud Type: Type of Clouds: Obtained from WX-BRIEF:

Clear		**Scattered**	
Few		**Overcast**	
Broken			

Compass: Please see Compass Heading.

Compass Deviation: Of aircraft's Compass, caused by magnetic disturbances from electrical and metal components in aircraft, as determined during calibration of aircraft, and measured in Degrees. Obtained from *Aircraft's Documentation*

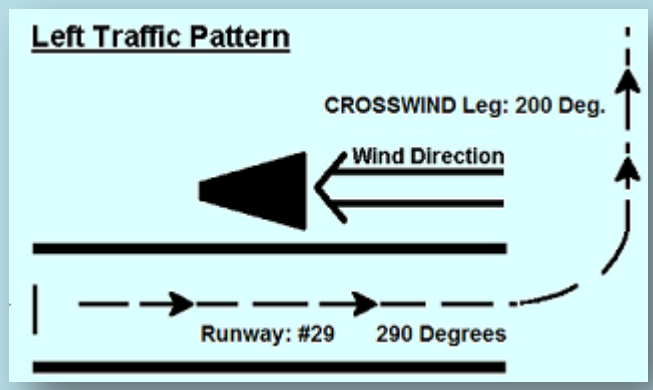
NOTE: This example shows Compass Deviation of -1 Degree from actual location of North Pole.

Compass Heading: Heading displayed by Compass during flight, measured in Degrees

NOTE: This example shows Heading of 353 Degrees.

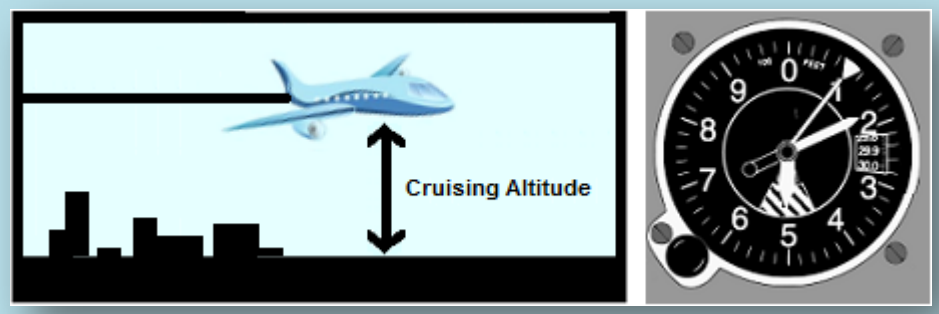
Where: Compass is instrument located in aircraft's Instrument Panel that displays Compass Headings.

Crosswind Leg: For Take-Off: Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees



Calculated by multiplying Runway Number by 10, and adding/subtracting 90 Degrees, as applicable
EXAMPLE: Crosswind Leg = 200 Degrees

Cruising Altitude: Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet. Obtained from *Chart*, using Plotter



Following rules apply to Cruising Altitude above 3,500 Feet:

- **Course of 0-179 Degrees:** Odd number + 500 Feet
- **Course of 180-359 Degrees:** Even number + 500 Feet

EXAMPLE: 5500 Feet (for Course of 140 Degrees)

Datum: Please see Empty Aircraft.

"Departure" Frequency: Used at busy Tower Airports operating in Class C Airspace, to control departure. Obtained from ATIS, or assigned by Clearance Delivery prior to Take-Off

NOTE: This example shows aircraft departing through Class C Airspace.

EXAMPLE: 121.3

Departure Point: Please see Home.

Descent Time: Time required for aircraft to descend from Cruising Altitude to Landing, measured in Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 12 Minutes

Destination: Name of Destination city and airport used for Arrival, usually obtained from your Flight Instructor

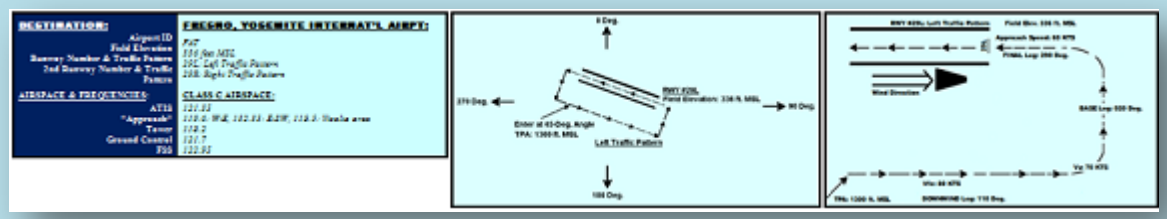
EXAMPLE: “Fresno, Yosemite International Airport”

“Destination” Form:

Provides a convenient way to organize following required information for Destination airport:

- **Airport Name:** Name of city and airport
- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, in Feet MSL
- **Runway Number:** Runway assigned for Take-Off/Landing
- **Traffic Pattern:** Standard Path associated with Runway Number, to Left/Right of Runway
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **ATIS Frequency:** Automatic Terminal Information Service: Provides current weather information.
- **"Approach" Frequency:** Controls approach through Class C Airspace.
- **Tower Frequency:** Controls Airspace surrounding Airport.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.
- **"Departure" Frequency:** Controls departure through Class C Airspace.

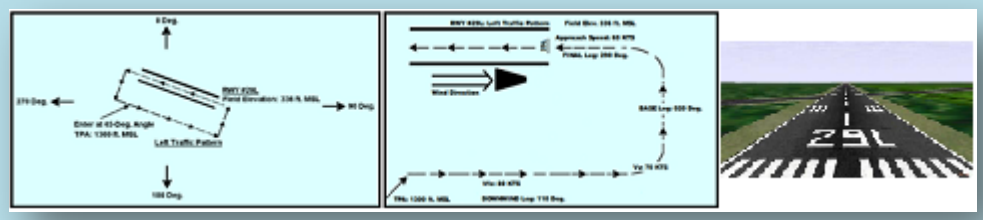
“Destination: Landing” Print-Out:



Provides following required information used for Landing at Destination airport:

- General Airport Information
- Approach Details
- Landing Details

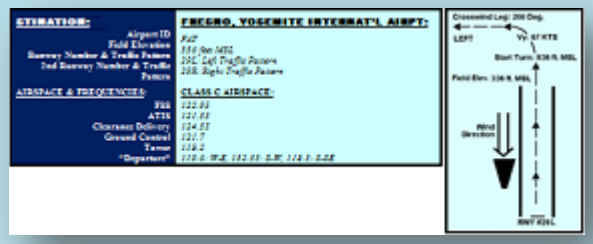
“Destination: Landing” Traffic Pattern:



Displays following information for Landing at Destination airport:

- Approach Details
- Landing Details
- Runway Number

“Destination: Take-Off” Print-Out:



Provides following required information used for Taking Off from Destination Airport (return trip):

- General Airport Information
- Take-Off Details

"Destination: Take-Off" Traffic Pattern:

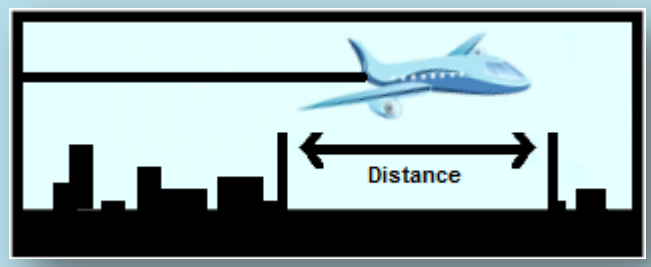
Displays following information for Taking Off from Destination Airport (return trip):

- Take-Off Details
- Runway Number

Dew Point: Air Temperature where water vapor will condense into liquid water, measured in Degrees Centigrade, and obtained from WX-BRIEF:

EXAMPLE: 5 Degrees Centigrade = 41 Degrees Fahrenheit

Distance: Measured in Nautical Miles, and obtained from *Chart*, using Plotter.

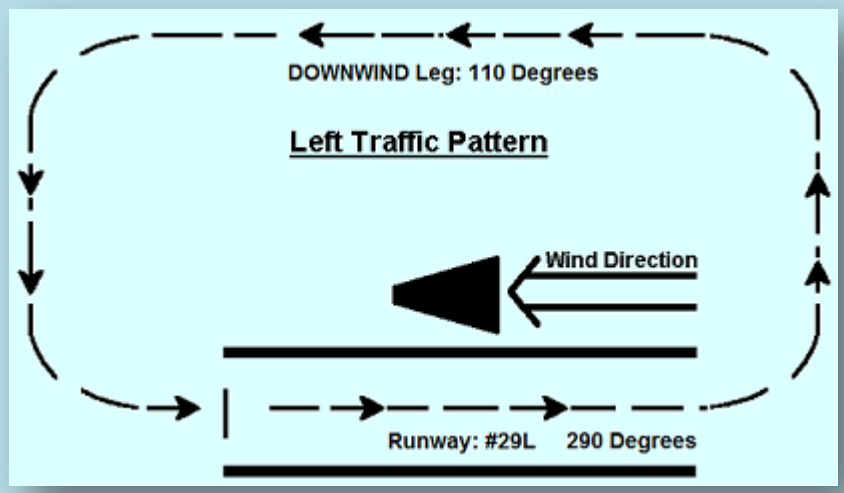


EXAMPLE: 24 NM = 27 Miles, 1088.9 Yards:

- **From:** "San Jose, Mineta International Airport"
- **To:** "San Martin, South Co. Airport"

DME: Distance Measuring Equipment: Instrument located in aircraft's Instrument Panel that measures distance of aircraft from navigation aid, in Nautical Miles

Downwind Leg: For Landing: Long leg of Traffic Pattern that runs opposite (180 Degrees) to Runway, measured in Degrees



Calculated by multiplying Runway Number by 10, and adding/subtracting 180 Degrees, as applicable
EXAMPLE: Downwind Leg = 110 Degrees

DVFR: Defense Visual Flight Rules: Govern procedure for conducting flight within air defense identification zone

Empty Aircraft:

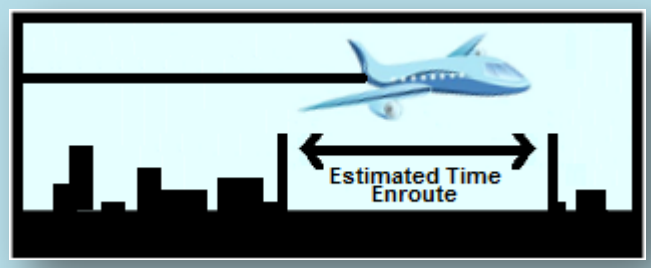
Aircraft before Fuel and Pilot, etc., comprising following information for Empty Aircraft, obtained from *Pilots Operator Handbook*:

- **Weight:** Measured in Pounds
- **Arm:** Measured in Inches
- **Datum:** Location of Center of Gravity (heaviest part of aircraft) for Empty Aircraft

EXAMPLE:

- **Weight:** 1460 Pounds
- **Arm:** 37.4 Inches
- **Datum:** Please see figure

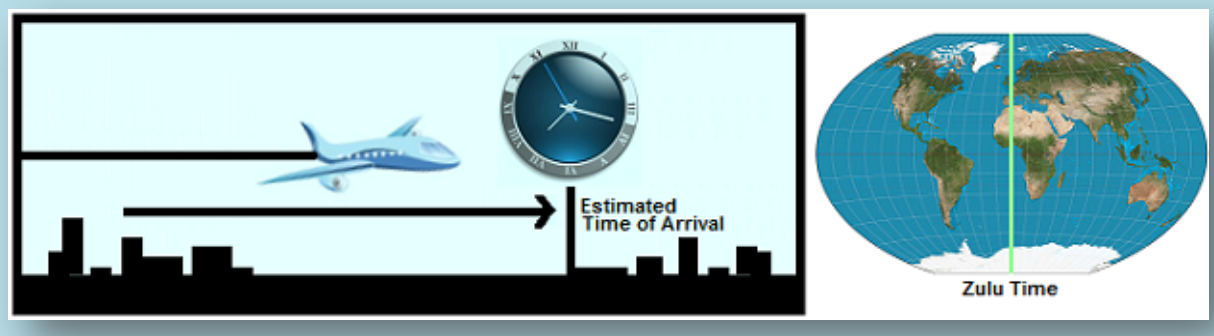
Estimated Time Enroute: Expected duration of time, measured in Minutes



EXAMPLE: 23 Minutes:

- **From:** "San Jose, Mineta International Airport"
- **To:** "San Martin, South Co. Airport"

Estimated Time of Arrival: Expected time to arrive at a location, listed in Zulu Time



EXAMPLE: 1623 Zulu Time (4:23 PM) = 9:23 AM Pacific Daylight Time

FAA Briefer: Federal Aviation Administration

Contacted by calling WX-BRIEF, to:

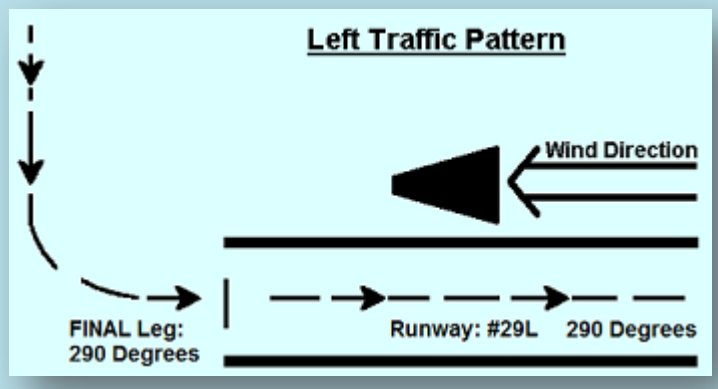
- Obtain Weather Briefing.
- File/close Flight Plan.

Field Elevation: (Field Elev.): Airport elevation, measured in Feet MSL (Mean Sea Level), and obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** 62 Feet MSL
- **Destination:** 336 Feet MSL

Final Leg: For Landing: Leg of Traffic Pattern that includes Runway, measured in Degrees



Calculated by multiplying Runway Number by 10

EXAMPLE: Final Leg = 290 Degrees

Flap-Extended Speed (Vfe): For Landing: Highest speed permissible with wing flaps extended, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

NOTE: This example shows aircraft on Downwind Leg, with Flaps Extended.

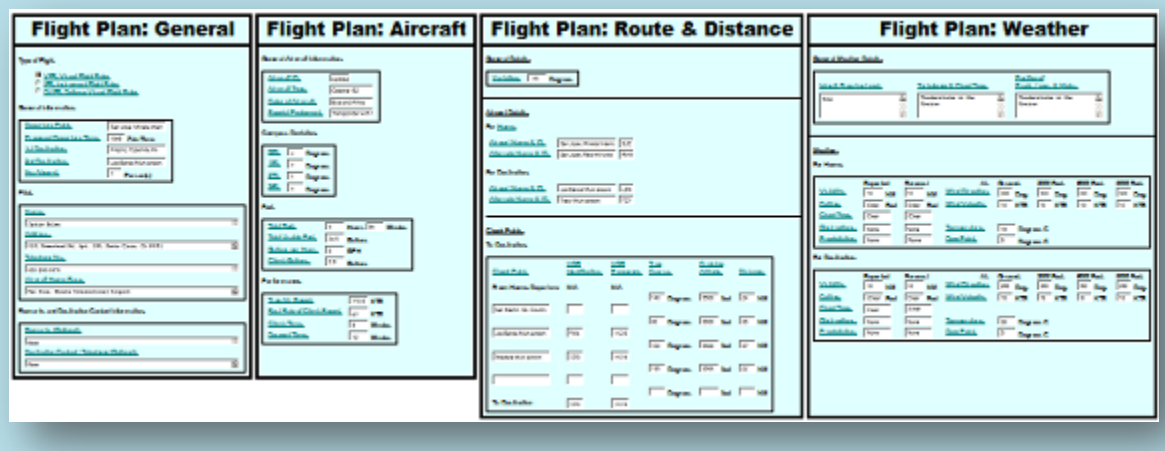
EXAMPLE: 80 KTS = 92.062 MPH

Flight Instructor:

Source of following information required for your Flight:

- Type of Flight
- General Flight-Related Information, including Departure Point and Destination

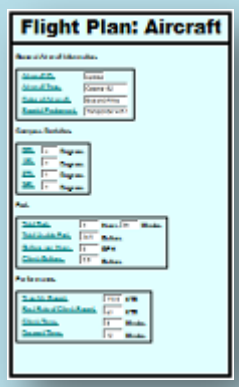
“Flight Plan” Set of Forms:



Comprises following forms which provide a convenient way to organize following required information for your Flight:

- **"Flight Plan: General" Form:** General flight-related information
- **"Flight Plan: Aircraft" Form:** Aircraft-related information critical for aircraft performance
- **"Flight Plan: Route & Distance" Form:** Navigation-related information
- **"Flight Plan: Weather" Form:** Weather-related information

“Flight Plan: Aircraft” Form:



Provides a convenient way to organize following aircraft-related information critical for aircraft performance:

- **Aircraft ID:** Aircraft's license number, usually starting with "N"
- **Aircraft Type:** Aircraft make and model
- **Color of Aircraft:** May be multiple colors.
- **Special Equipment:** Any special equipment aboard aircraft
- **Compass Deviation:** Of aircraft’s Compass, caused by electrical and metal components in aircraft, in Degrees
- **Fuel on Board:** Aircraft’s total fuel, in Hours & Minutes
- **Total Usable Fuel:** Aircraft’s total fuel available for flight planning, in Gallons
- **Gallons per Hour:** (GPH): Amount of fuel consumed per hour
- **Climb Gallons:** Amount of fuel required for aircraft to climb to Cruising Altitude
- **Air Speed:** Speed displayed by aircraft’s Air Speed Indicator, in Nautical Miles
- **Best Rate-of-Climb Speed:** Results in best rate of climb, in Nautical Miles
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude after Take-Off, in Minutes
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude, in Minutes

“Flight Plan: General” Form:

Provides a convenient way to organize following general flight-related information:

- **Type of Flight:** Visual Flight Rules, Instrument Flight Rules, or Defense Visual Flight Rules
- **Departure Point:** Name of Home city and airport
- **Proposed Departure Time:** Planned Departure Time, listed in Zulu Time
- **Destination:** Name of Destination city and airport used for Arrival
- **No. Aboard:** Number of individuals aboard aircraft, including yourself
- **Name:** Your name, as Pilot
- **Address:** Use your home address
- **Telephone No.:** Use your mobile phone or home telephone number
- **Aircraft Home Base:** Usually same as Departure Point

"Flight Plan: Route & Distance" Form:

Provides a convenient way to organize following navigation-related information:

- **Variation:** Difference between actual location of North Pole, and Compass display of 360 Degrees, in Degrees
- **Airport Name & ID:** Name of city and airport, and unique 3-letter alpha-numeric identification
- **Alternate:** Designated airport where aircraft can land if Destination inadvisable
- **Check Points:** Set of recognizable landmarks that can be positively identified from the air
- **VOR Identification & Frequency:** VHF Omni-directional Range: Radio navigational system
- **True Course:** Intended direction of flight, as measured on *Chart*, in Degrees
- **Cruising Altitude:** Level portion of aircraft travel, where flight is most fuel-efficient, in Feet
- **Distance:** In Nautical Miles

“Flight Plan: Weather” Form:

Provides a convenient way to enter and organize following weather-related information:

- **Icing & Freezing Level:** Height above Earth’s surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft
- **Turbulence:** Turbulent movement of air masses caused when bodies of air meet
- **Cloud Tops:** Cloud Height usually associated with Turbulence
- **Front:** Leading edge of air masses with different density
- **Low/High Pressure Center:** Region of Earth’s atmosphere where air pressure is low/high
- **Visibility:** Greatest distance an observer can see and identify objects, in Nautical Miles
- **Ceiling:** Cloud Layer: Height above Earth’s surface of lowest layer of clouds, in Feet
- **Cloud Type:** Type of Clouds
- **Obstructions:** Particular matter in atmosphere that obstructs/reduces Pilot’s visibility
- **Precipitation:** Water particles that fall from the atmosphere and reach the ground
- **Wind Direction:** In Degrees
- **Wind Velocity:** Speed: In Nautical Miles
- **Temperature:** Air Temperature: In Degrees Centigrade
- **Dew Point:** Temperature where water vapor will condense into liquid water, in Degrees Centigrade
- **Altimeter:** Setting used to adjust aircraft’s Altimeter for variations in atmospheric pressure, in inHg (Inches of Mercury at 0 degrees Centigrade Pressure Unit).

"Flight Plan Section" Print-Out:

1. Type of Flight	VFR
2. Aircraft ID	54554
3. Aircraft Type/Equipment	Cessna 152
4. True Air Speed	110.8 KTS
5. Departure Point	San Jose, Mineta International Airport
6. Departure Time	1600 Zulu Time
7. Cruising Altitude	3500 Feet
8. Route of Flight	San Martin, South Co. airport Los Banos Muni airport Madera Muni airport
9. Destination	Fresno, Yosemite International Airport
10. Estimated Time Enroute	1 Hour and 28 Minutes
11. Remarks	None
12. Fuel On Board	3 Hours and 58 Minutes
13. Alternate Airport(s)	Madera Muni airport
14. Pilots Name, Address, Tel. No., & Aircraft Home Base	Jackie Bolen 3131 Homestead Rd. #10K Santa Clara, CA 95051 408-246-8474
15. No. Aboard	1 Person
16. Color(s) of Aircraft	Blue and White
17. Destination Contact/Tel. (Optional)	None

Provides following general flight-related information used for filing with FAA Briefer at start of Flight:

- **Type:** Type of Flight: Visual Flight Rules, Instrument Flight Rules, or Defense Visual Flight Rules
- **Aircraft ID:** Aircraft's license number, usually starting with "N"
- **Aircraft Type/Equip.:** Aircraft make and model, and any special equipment aboard aircraft
- **True Air Speed:** Air Speed used for filing Flight Plan with FAA Briefer, in Nautical Miles
- **Departure Point:** Name of Home city and airport
- **Departure Time:** Proposed Departure Time: Planned Departure Time, listed in Zulu Time
- **Cruising Altitude:** Level portion of aircraft travel that is most fuel-efficient, in Feet
- **Route of Flight:** Set of selected recognizable Check Points positively identified from the air
- **Destination:** Name of Destination city and airport used for Arrival
- **Est. Time Enroute:** Total Estimated Time Enroute, in Hours & Minutes
- **Remarks:** Optional
- **Fuel on Board:** Aircraft's total fuel, without Reserve Fuel, in Hours & Minutes
- **Alternate Airport:** Designated airport where aircraft can land if Destination inadvisable
- **Pilot's Name, Address, Telephone Number, etc.:** Your information
- **No. Aboard:** Number of individuals aboard aircraft, including yourself
- **Color of Aircraft:** May be multiple colors.
- **Destination Contact / Telephone:** Optional

Freezing Level: Height above Earth's surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft, measured in Feet, and obtained from WX-BRIEF:

NOTE: This example shows cirrocumulus clouds, predominantly composed of ice crystals positioned at Freezing Level.

Front: Leading edge of air masses with different density (air temperature and/or humidity), marked by changes in Temperature, Moisture, Wind Direction & Velocity, Barometric Pressure, and (often) Precipitation. Obtained from WX-BRIEF:

Cold Front

Warm Front

Occluded Front

Stationary Front

Shear Line

FSS Frequency: Flight Services Station: Obtained from *Airport/Facilities Directory*

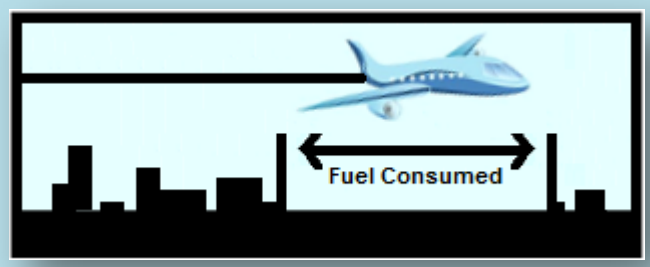
Used at mid-sized to larger Tower Airports, to allow Pilot to:

- Obtain Weather Briefing, fuel, ground transportation, etc.
- File/close Flight Plan with FAA Briefer.

EXAMPLE:

- **Departure Point:** 122.95
- **Destination:** 122.95

Fuel Consumed: Measured in Gallons



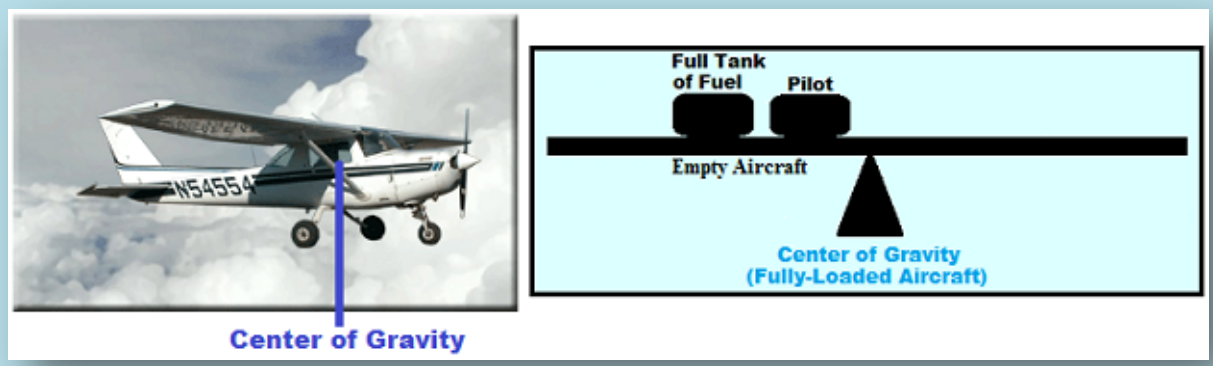
EXAMPLE: 1.9 Gallons + 0.9 Climb Gallons:

- **From:** "San Jose, Mineta International Airport"
- **To:** "San Martin, South Co. Airport"

Fuel on Board: Aircraft's total fuel available for flight planning, without Reserve, measured in Hours and Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 3 Hours and 38 Minutes

Fully-Loaded Aircraft:



Aircraft after following have been added, obtained from *Pilots Operator Handbook*:

- Fuel
- Pilot
- Etc.

Where: Center of Gravity is heaviest part of aircraft.

EXAMPLE: Center of Gravity is 38.38 Inches (shift Aft from when aircraft was empty)

GPH: Gallons per Hour: Amount of Fuel Consumed per hour, obtained from *Pilots Operator Handbook*

EXAMPLE: 8 Gallons per Hour

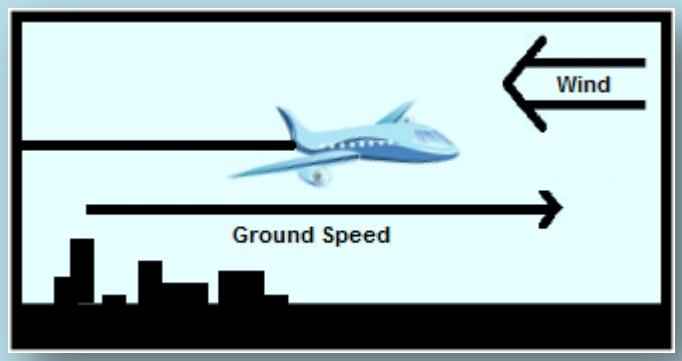
GPS: Global Positioning System: Instrument located in aircraft's Instrument Panel, as Space-based satellite navigation system, that provides location and time information in all weather conditions

Ground Control Frequency: Used at larger airports to control airport operations on the ground: Obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** 121.7
- **Destination:** 121.7

Ground Speed: Speed of aircraft in relation to the ground, measured in Nautical Miles



EXAMPLE: 107 KTS = 123.1 MPH

High Pressure Center: Region of Earth's atmosphere where air (Barometric) pressure is high. Obtained from WX-BRIEF

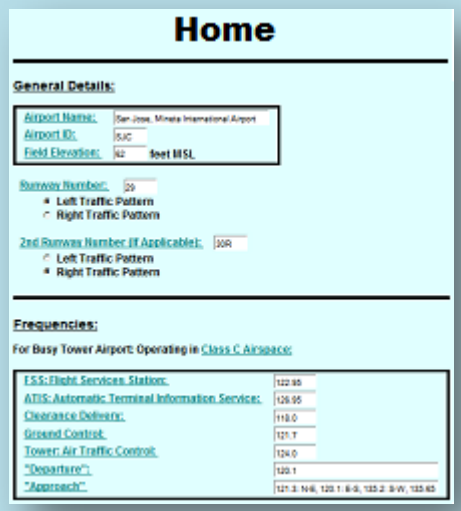
Where:

- Skies are clearer.
- Winds are lighter.
- There is a reduced chance of precipitation.
- There is normally a greater range between high and low temperature.
- Air is drier.
- Air pollution may build up, if high pressure persists.

Home: (Departure Point): Name of Home city and airport, usually obtained from your Flight Instructor

EXAMPLE: “San Jose, Mineta International Airport”

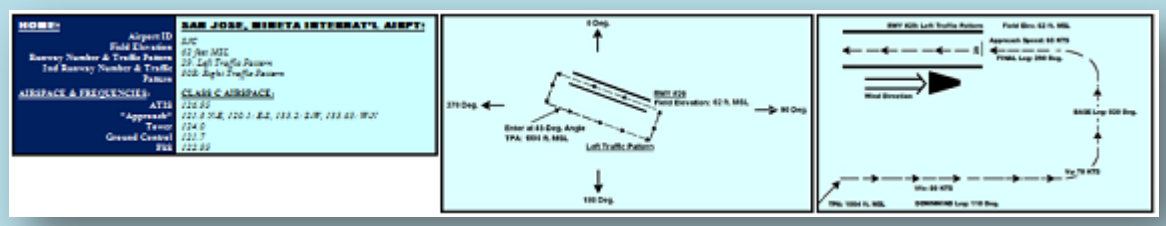
"Home" Form:



Provides a convenient way to organize following required information for Home airport:

- **Airport Name:** Name of city and airport
- **Airport ID:** Unique 3-letter alpha-numeric identification used to represent airport
- **Field Elevation:** Airport elevation, in Feet MSL
- **Runway Number:** Runway assigned for Take-Off/Landing
- **Traffic Pattern:** Standard Path associated with Runway Number, to Left/Right of Runway
- **Class C Airspace:** Controlled, where Air Traffic Control uses radar to control traffic in airspace
- **FSS Frequency:** Flight Services Station: Allows Pilot to obtain fuel, ground transportation, Weather Briefing, etc., and file/close Flight Plan with FAA Briefer.
- **ATIS Frequency:** Flight Services Station: Allows Pilot to obtain services, etc.
- **Clearance Delivery Frequency:** Allows Air Traffic Control to relay clearances to departing traffic.
- **Ground Control Frequency:** Controls airport operations on the ground.
- **Tower Frequency:** Controls Airspace surrounding airport.
- **"Departure" Frequency:** Controls departure through Class C Airspace.
- **"Approach" Frequency:** Controls approach through Class C Airspace.

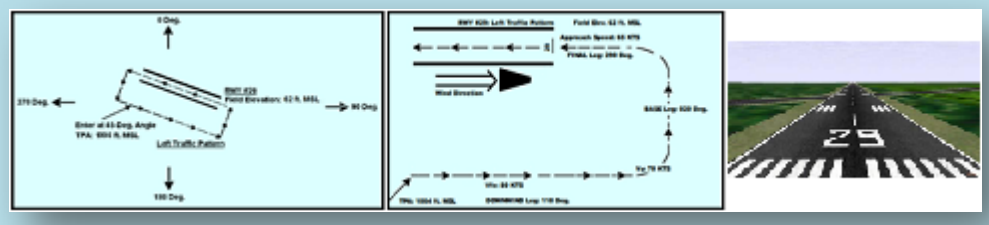
"Home: Landing" Print-Out:



Provides following required information used for landing at Home airport (return trip):

- General Airport Information
- Approach Details
- Landing Details

“Home: Landing” Traffic Pattern:



Displays following information for landing at Home airport (return trip):

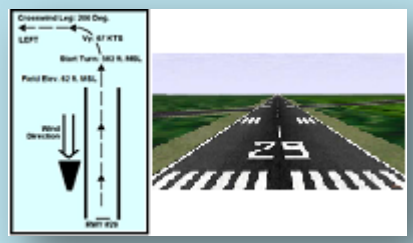
- Approach Details
- Landing Details
- Runway Number

“Home: Take-Off” Print-Out:

Provides following required information used for Taking Off from Home airport:

- General Airport Information
- Take-Off Details

“Home: Take-Off” Traffic Pattern:



Displays following information for Taking Off from Home airport:

- Take-Off Details
- Runway Number

Icing:

NOTE: This example shows Icing on a Wing.

Formation of water ice on aircraft, in following locations, obtained from WX-BRIEF:

- On surfaces
- Within engine (as carburetor icing)

Many aircraft are not certified for flight into known conditions, where icing and freezing are certain, or likely to exist.

IFR: Instrument Flight Rules: Govern procedure for conducting flight in weather conditions

inHg: Inches of Mercury at 0 degrees Centigrade Pressure Unit: Used to measure variations in existing atmospheric pressure and temperature

Low Pressure Center: Region of Earth's atmosphere where air (Barometric) pressure is low. Obtained from WX-BRIEF:

NOTE: This example shows a Low Pressure Center with Thunderstorms.

Weather is normally unsettled in its vicinity, with:

- Increased cloudiness, winds, and temperatures
- Upward motion in the atmosphere
- Increased chance of precipitation, and in some cases, snow

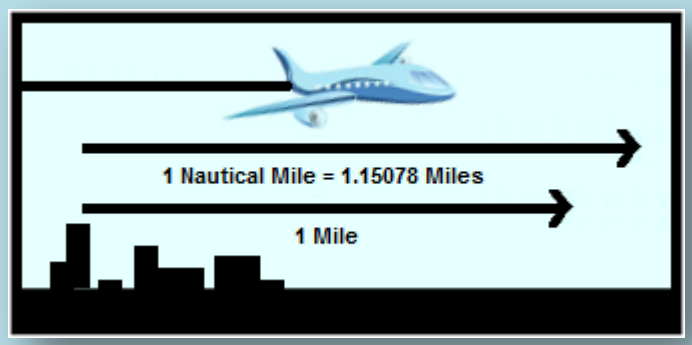
Maximum Gross Weight: Maximum allowable weight for Take-Off and operation of aircraft, measured in Pounds, and obtained from *Pilots Operator Handbook*

EXAMPLE: 2400 Pounds

MSL: Mean Seal Level: Average height of surface of sea for all stages of tide:

NOTE: This example shows sea level at Low and High Tide. Elevation is measured in Feet MSL.

Nautical Miles (KTS, NM):



Used to measure:

- **Speed:** 1 KTS = 1.15078 MPH
- **Distance:** 1 NM = 1.15078 Miles

"Navigation Log" Print-Out:

Provides following navigation-related information used for pre-flight navigation planning and keeping track of progress during Flight:

- **Total Usable Fuel:** Aircraft's total fuel available for flight planning, in Gallons
- **Climb Gallons:** Amount of fuel required for aircraft to climb to Cruising Altitude
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude, in Minutes
- **VOR Identification & Frequency:** VHF Omni-directional Range: Radio navigational system
- **Cruising Altitude:** Level portion of aircraft travel, where flight is most fuel-efficient, in Feet
- **True Air Speed:** Air Speed used for filing Flight Plan with FAA Briefer, in Nautical Miles
- **Compass Heading:** Heading displayed by aircraft's Compass during flight, in Degrees
- **Distance:** In Nautical Miles
- **Ground Speed:** Speed of aircraft in relation to the ground, in Nautical Miles
- **Estimated Time Enroute:** Expected duration of time, in Minutes
- **Estimated Time of Arrival:** Estimated Time to arrive at a location, listed in Zulu Time
- **Fuel Consumed:** In Gallons

Non-Tower Airport:

Smaller airport without operating tower, where aircraft follow standard procedures, that:

- Often involve standard arrival and departure patterns
- May also include radio calls over common frequency

Obstructions: Particular matter in atmosphere that obstructs/reduces Pilot's visibility. Obtained from WX-BRIEF:

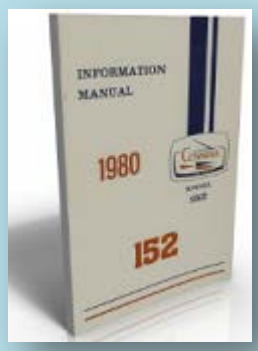
None		**Sand**	
Fog		**Dust**	
Mist		**Smoke**	
Haze		**Volcanic Ash**	
Spray			

Phone: To call WX-BRIEF (800 number) to:

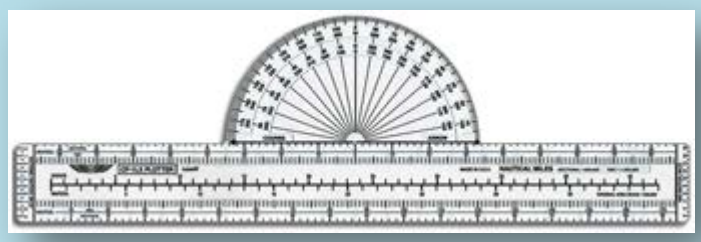
- Obtain Weather Briefing.
- File/close Flight Plan with FAA Briefer.

***Pilots Guide to Airports*:** Directory produced by OPTIMA for obtaining airport-related information, purchased at a store that specializes in flying supplies

***Pilots Operator Handbook*:** Operators manual for Aircraft Type, purchased at store specializing in flying supplies



Plotter: Instrument used for plotting Route of Flight, purchased at store specializing in flying supplies



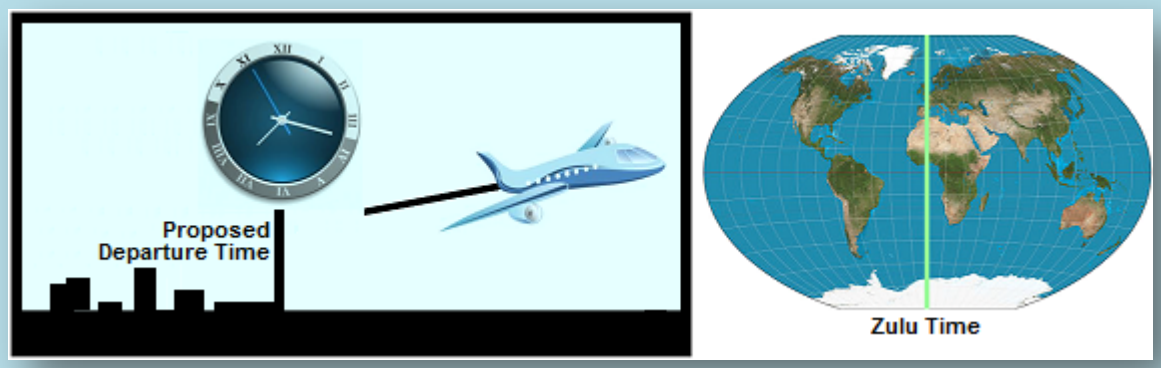
Precipitation: Water particles that fall from the atmosphere and reach the ground. Obtained from WX-BRIEF:

None		**Small Hail**	
Rain		**Snow Grains**	
Drizzle		**Ice Pellets**	
Ice Crystals		**Snow**	
Hail			

Set of Print-Outs: Comprises following print-outs which provide following required information:

- **"Flight Plan Section":** General flight-related information used for filing with FAA Briefer at start of Flight
- **"Weather Log":** Weather-related information used for pre-flight weather planning and avoiding certain hazardous situations during Flight
- **"Navigation Log":** Navigation-related information used for pre-flight navigation planning and keeping track of progress during Flight
- **"Home: Take-Off":** Used for Taking Off from Home airport.
- **"Destination: Landing":** Used for Landing at Destination airport.
- **"Destination: Take-Off":** Used for Taking Off from Destination Airport (return trip).
- **"Home: Landing":** Used for landing at Home airport (return trip).

Proposed Departure Time: Planned departure time, listed in Zulu Time, and obtained from Flight Instructor



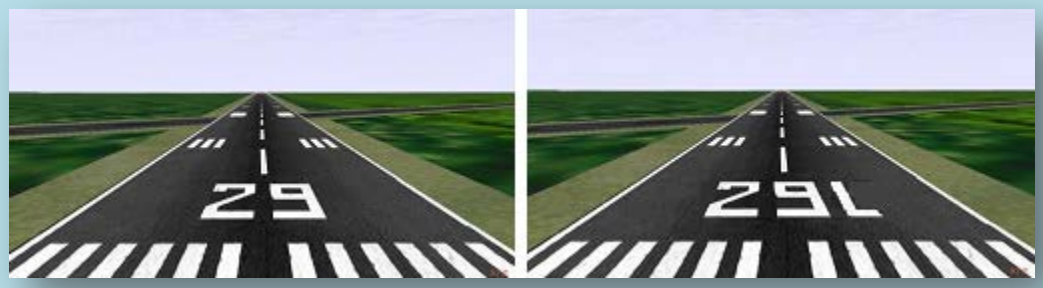
EXAMPLE: 1600 Zulu Time (4:00 PM) = 9:00 AM Pacific Daylight Time

Reserve Fuel: Number of Gallons, obtained from *Pilots Operator Handbook*

EXAMPLE: 4 Gallons

Route of Flight: Please see Check Points.

Runway Number: (RWY): Runway assigned for Take-Off/Landing, by Clearance Delivery / "Approach"



EXAMPLE:

- **Departure Point:** 29
- **Destination:** 29L

Special Equipment: Any special equipment aboard aircraft. May include following instruments, etc., located in aircraft's Instrument Panel Obtained from *Aircraft's Documentation*.

Transponder with Mode C:

VOR: VHF Omni-directional Range:

GPS: Global Positioning System:

DME: Distance Measuring Equipment:

Temperature: Air Temperature: Measured in Degrees Centigrade, and obtained from ATIS:

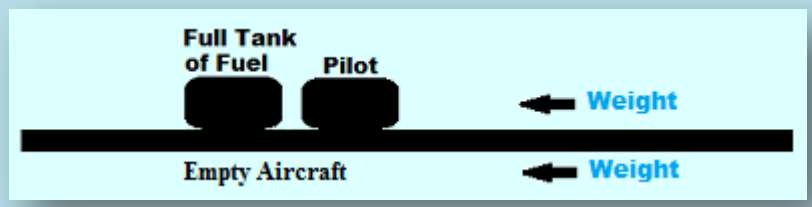
EXAMPLE:

- **Departure Point:** 19 Degrees Centigrade = 66.2 Degrees Fahrenheit
- **Destination:** 35 Degrees Centigrade = 95 Degrees Fahrenheit

Total Usable Fuel: Aircraft's total fuel available for flight planning, without Reserve, measured in Gallons, and obtained from *Pilots Operator Handbook*

EXAMPLE: 24.5 Gallon

Total Weight: Combined Weight for all heaviest objects within the Fully-Loaded Aircraft, measured in Pounds, and calculated by adding up the individual Weights.



EXAMPLE: 1860 Pounds:

- **Empty Aircraft:** 1460 Pounds
- **Full Tank of Fuel:** 240 Pounds
- **Pilot:** 160 Pounds

Tower Airport:

Mid-sized to large airport with Tower that provides service, where ground Controllers direct aircraft, on the ground, and through controlled airspace, with primary purpose of:

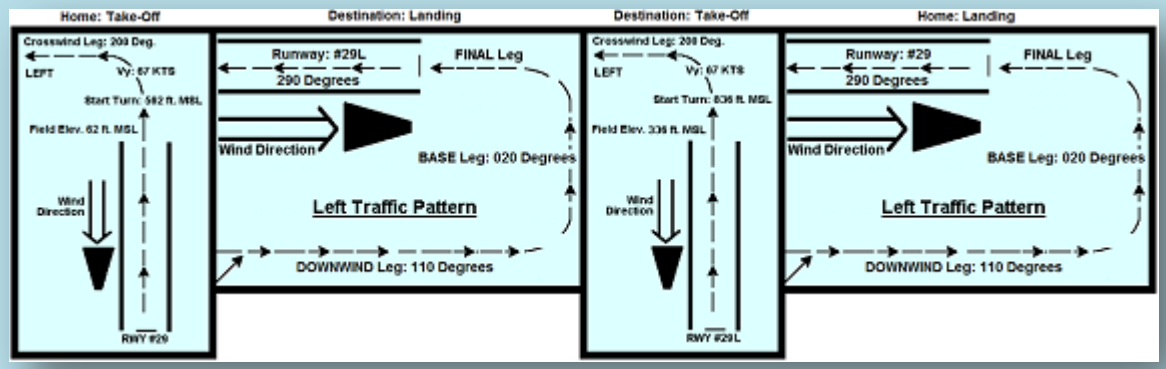
- Separating aircraft to prevent collisions
- Organizing and expediting flow of traffic
- Providing information and other support for Pilots, when able

Tower Frequency: Air Traffic Control: Used at mid-sized to larger Tower Airports, to control airspace surrounding airport. Obtained from *Airport/Facilities Directory*, or assigned by "Approach" prior to Landing

EXAMPLE:

- **Departure Point:** 124.0
- **Destination:** 118.2

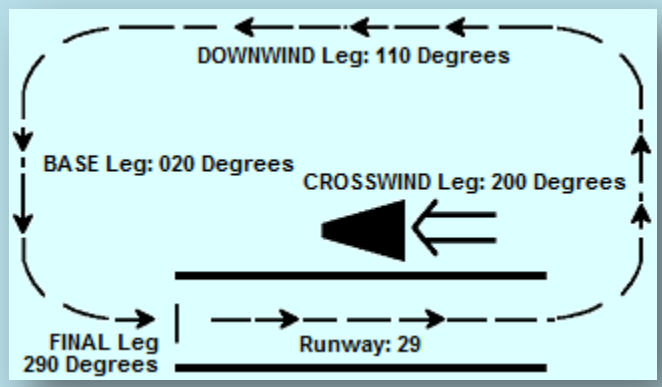
Traffic Pattern: Set of Displays:



Comprises following set of displayed Traffic Patterns, also included in set of Print-Outs:

- **"Home: Take-Off":** For Taking Off from Home airport
- **"Destination: Landing":** For Landing at Destination airport
- **"Destination: Take-Off":** For Taking Off from Destination Airport (return trip)
- **"Home: Landing":** For Landing at Home airport (return trip)

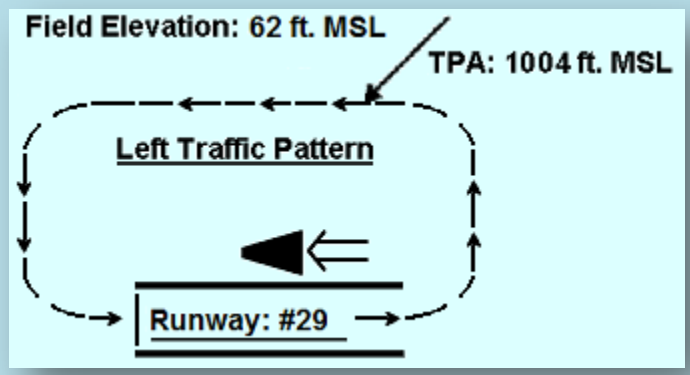
Traffic Pattern: Standard path (traffic flow) associated with Runway assigned for Take-Off/Landing, to Left/Right of Runway, and obtained from *Airport/Facilities Directory:*



EXAMPLE:

- **Departure Point:** Runway Number = 29
- **Destination:** Runway Number = 29L

Traffic Pattern Altitude (TPA): Altitude for Traffic Pattern associated with Runway assigned for Landing, measured in Feet MSL, and obtained from *Airport/Facilities Directory*



EXAMPLE:

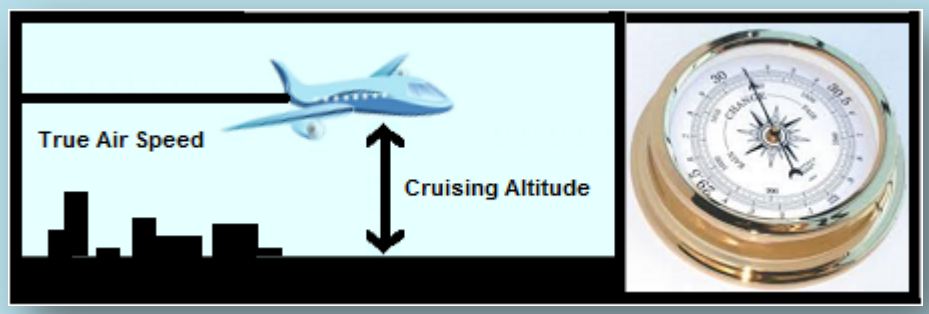
- **Departure Point:** 1004 Feet MSL
- **Destination:** 1300 Feet MSL

Transponder with Mode C: Instrument located in aircraft's Instrument Panel that enhances aircraft's identity on Air Traffic Controller's radar screen.

NOTE: This example shows a Transponder with Mode C, displaying assigned Squawk Code of "4523."

Mode C provides additional required capabilities for operating in Class C Airspace that enable Air Traffic Controller to keep track of aircraft's identity.

True Air Speed: Air speed used for filing Flight Plan with FAA Briefer, and measured in Nautical Miles



EXAMPLE: 110.8 KTS = 127.5 MPH

True Course: Intended direction of flight, as measured on *Chart*, in Degrees

EXAMPLE: 140 Degrees:

- **From: "**San Jose, Mineta International Airport"
- **To: "**San Martin, South Co. Airport"

Turbulence: Turbulent movement of air masses caused when bodies of air (moving at widely different speeds) meet:

NOTE: This example shows Thunderstorms.

May be either of following two basic types:

- **Thermal Turbulence:** Uneven heating of Earth's surface by Sun, where darker patches absorb more radiation than lighter ones, causing air flows, such as Thunderstorms
- **Mechanical Turbulence:** Other turbulence, such as turbulent rotor, wake vortices of Take-Off/Landing aircraft, or eddies created by jet stream

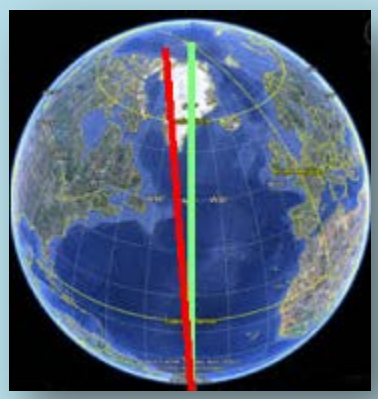
Type of Flight: Comprises following, obtained from Flight Instructor:

VFR: Visual Flight Rules:

IFR: Instrument Flight Rules:

DVFR: Defense Visual Flight Rules:

Variation: Magnetic Variation:



NOTE: This example shows Variation between Magnetic North (Red Line), and True North (Green Line).

Difference between following two measurements, obtained from *Chart*, and measured in Degrees**:**

- **Magnetic North:** Compass display of 360 Degrees
- **True North:** Actual location of North Pole

Where value will be:

- **Negative:** If Magnetic North is West of True North
- **Positive:** If Magnetic North is East of True North

EXAMPLE: -15 Degrees

VFR: Visual Flight Rules: Flight rules that specify minimum cloud clearance and visibility requirements for flight:

Visibility: Greatest distance an observer can see and identify objects through at least half of the horizon, measured in Nautical Miles, and obtained from ATIS:

Greater

Less

EXAMPLE:

- **Departure Point:** 10 Nautical Miles = 11 Miles, 893.72 Yards
- **Destination:** Greater than 10 Nautical Miles

VOR: VHF Omni-directional Range: Instrument located in aircraft's Instrument Panel, which is most commonly used radio navigational system in U.S.

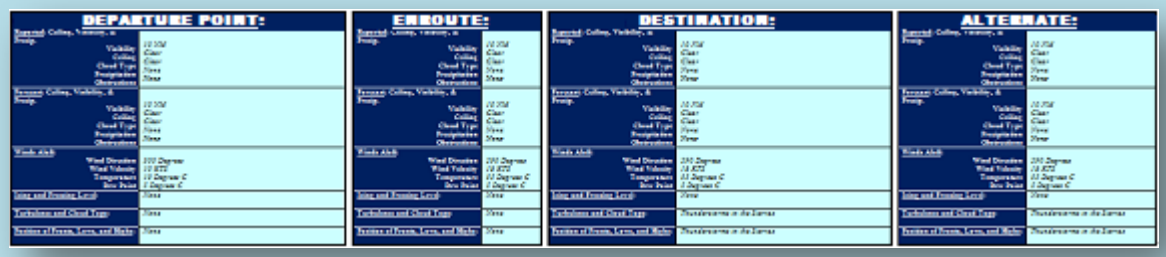
Comprises following information, obtained from *Chart*:

- **Identification:** Unique 3-letter alpha-numeric identification used to represent VOR site
- **Frequency:** Used to access VOR site, using VOR

EXAMPLE:

- **Identification:** SJC
- **Frequency:** 114.1

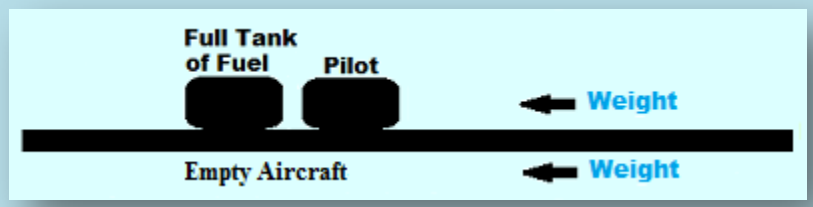
"Weather Log" Print-Out:



Provides weather-related information used for pre-flight weather planning and avoiding certain hazardous situations during Flight:

- **Visibility:** Greatest distance an observer can see and identify objects, in Nautical Miles
- **Ceiling:** Cloud Layer: Height above Earth's surface of lowest layer of clouds, in Feet
- **Cloud Type:** Type of Clouds
- **Precipitation:** Water particles that fall from the atmosphere and reach the ground
- **Obstructions:** Particular matter in atmosphere that obstructs/reduces Pilot's visibility
- **Wind Direction:** In Degrees
- **Wind Velocity:** Speed: In Nautical Miles
- **Temperature:** Air Temperature: In Degrees Centigrade
- **Dew Point:** Temperature where water vapor will condense into liquid water, in Degrees Centigrade
- **Icing & Freezing Level:** Height above Earth's surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft
- **Turbulence:** Turbulent movement of air masses caused when bodies of air meet
- **Cloud Tops:** Cloud Height usually associated with Turbulence
- **Front:** Leading edge of air masses with different density
- **Low/High Pressure Center:** Region of Earth's atmosphere where air pressure is low/high

Weight: Of each of heaviest objects aboard aircraft, measured in Pounds, and obtained from *Pilots Operator Handbook*

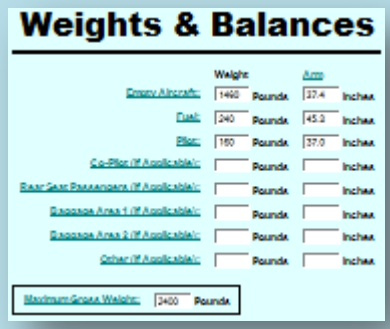


NOTE: Total Weight is derived by adding up the individual Weights.

EXAMPLE:

- **Empty Aircraft:** 1460 Pounds
- **Full Tank of Fuel:** 240 Pounds
- **Pilot:** 160 Pounds

"Weights & Balances" Form:



Used to allow proper Take-Off and operation of Fully-Loaded Aircraft, by ensuring that:

- **Weights:** It is not overweight.
- **Balances:** Heaviest objects (including passengers) are located nearest aircraft's Datum, forming safe Center of Gravity.

Wind Direction & Velocity:

Following wind-related information, obtained from WX-BRIEF:

- **Wind Direction:** Measured in Degrees
- **Wind Velocity:** Wind Speed, measured in Nautical Miles

EXAMPLE:

- **Wind Direction:** 300 Degrees
- **Wind Velocity:** 10 Nautical Miles = 11.5 Miles per Hour

WX-BRIEF:

United States Flight Services Station: National toll-free number (800) that allows Pilot to:

- Obtain Weather Briefing.
- File/close Flight Plan with FAA Briefer, who records Flight Plan.

Your Weight: As only person aboard, and one of heaviest objects aboard Fully-Loaded Aircraft, used for Weights & Balances, and measured in Pounds

EXAMPLE: 160 Pounds

Zulu Time: Universal Time Coordinated (UTC):

Term used in aviation, which places entire world on one time standard (running through London), for determining:

- Departure and arrival times
- Time Checks
- Etc.

Zulu Time uses a 24-Hour Clock, which adds 12 to the PM hour number, as in example.

This information may be obtained from Internet, at ***www.time.gov/***.

EXAMPLE: 8:25 PM = 20:25 (24-Hour Clock)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